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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Normand Dupuis et al.

Group Art Unit: 2875

Application No.: 10/783,384

Examiner: Not Yet Assigned

Filing Date: February 20, 2004

For: High Light Density Fluorescent Luminaire

SUBMISSION OF PRIORITY DOCUMENTS

Mail Stop Missing Parts
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Enclosed herewith is the following certified copy of the priority document:

Canadian Patent Application No. 2,419,484, dated February 21, 2003.

In the event there are any fees due and owing in connection with this matter, please charge same to our Deposit Account No. 11-0223.

Dated: July 26, 2004

Respectfully submitted,

By 

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F:\Clients\R. William Wray & Assoc\210-3\Submission of Priority Documents (7-26-04).doc

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail, in an envelope addressed to: MS: Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

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Signature: 

Print Name: Ute H. Wojtkowski



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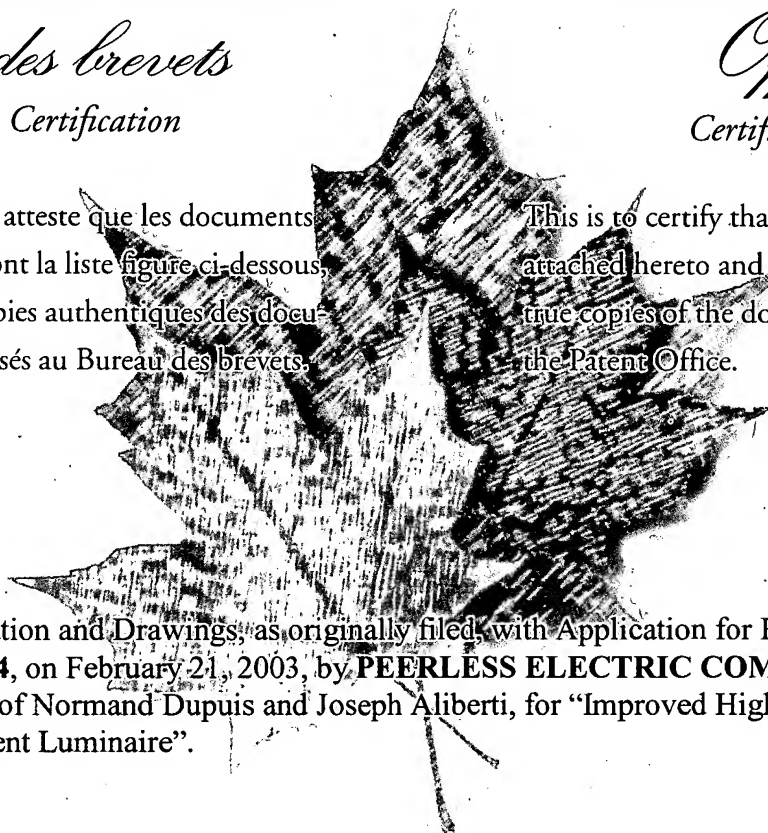


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attached hereto and identified below are
true copies of the documents on file in
the Patent Office.



Specification and Drawings, as originally filed, with Application for Patent Serial No:
2,419,484, on February 21, 2003, by **PEERLESS ELECTRIC COMPANY LTD.**,
assignee of Normand Dupuis and Joseph Aliberti, for "Improved High Light Density
Fluorescent Luminaire".


Agent certificateur/Certifying Officer

July 7, 2004

Date

Canada

(CIPO 68)
04-09-02

OPIC  CIPO

ABSTRACT

An extra high light density fluorescent luminaire is described.

EXTRA HIGH LIGHT DENSITY FLUORESCENT LUMINAIRE**Field of the Invention**

This invention relates to fluorescent lighting fixtures. In particular, this invention relates to extra high light density fluorescent luminaires.

Background of the Invention

It is common practice to use Lighting fixtures employing fluorescent lamps, to provide the main lighting of large and small spaces, replacing or complementing incandescent lights in the majority of commercial and industrial applications.

Fluorescent lighting fixtures are commonly made to direct the lamp light downward towards the floor or upwards towards the ceiling or in a combination of both to meet the particular user needs in offices, stores, mass merchandizing areas or factories, wherever fluorescent lights are used. It is also common to use reflectors behind the lamps and diffusers in front of the lamps to control where the emitted light is being directed and to place the electrical components in special sides of the fixtures.

It is common also to install fluorescent luminaires in long linear lines due to the limited number of lamps, usually 4 to 6 that the lighting fixture can accommodate side by side in the standard 2 foot wide fixture size used by the industry.

The disadvantages of the present practice are that a larger number of fixtures are required per installation due to the fewer lamps each fixture can accommodate. The limited possibilities of installing the fixtures over the space to be lighted except in end to end in long rows and the limitation of the fluorescent fixture applications to low and medium height ceilings of about 15 to 20 ft due to the small number of lamps per fixture, and the time and cost of individually mounting or changing the electrical components inside the fixture.

It is also common practice at present, to use two types of fluorescent fixtures in the same commercial space, one to provide the general space lighting and another lighting fixture to display commercial messages or directional signs on the sides of that fixture.

The disadvantage of these special illuminated display fixtures is that they are expensive, require special independent installation and they add to the cost of the lighting installation and are only visible in the direct areas where they are installed.

Examples of the prior art are United States patent No. 6,024,468 and United States No. 6,428,183 B1

Improvements are continuously sought to improve optical efficiency and to reduce cost of luminaires.

Summary of the Invention

The present invention is for an improved fluorescent luminaire with a novel socket support plate design to make a 2ft wide fluorescent luminaire accommodate up to 10 high output modern T-5 fluorescent lamps rather than 4 or 6 lamps of the present practice.

This increased lamp density per luminaire, reduces the number of luminaires per installation. It also provides installation flexibility in individual rather than in continuous linear row mounting and the high light density makes it possible to use fluorescent fixtures mounted at high elevations where ceiling heights may reach 30 or 35 ft which was not practical with conventional luminaires.

Another objective of this invention is to provide a modular type luminaire where all the electrical components such as ballasts, lamps and sockets can all be pre-assembled as a modular unit that can, quickly and easily, be inserted or removed from the luminaire. This modularity appreciably reduces the cost of the fixture assembly and allows the use of many different ballast lamp combinations in the same housing in a quick and easy manner.

Another object of this invention is to provide an improved fluorescent luminaire that provides both main lighting of space and at the same time provides the sign or advertising lighting from the same luminaire rather than from two independent luminaires as in the present practice by incorporating a specially designed top with 4 luminous sides on which logos, signs or advertising material posters can be placed and exchanged easily without affecting any of the luminaire functions or its safety features.

The general space lighting function of this improved fixture is provided through the lower section of the fixture while the commercial messages or directional signs are provided through the top

section, thus combining two functions in one luminaire with big savings in installation and in operation cost.

A further object of this invention is to increase the utility of a fluorescent luminaires commonly purchased for the sole purpose of lighting space in commercial or industrial applications, into a revenue generating luminaire through the capability of the improved design to carry messages and product advertisements and the possibility of selling same for the same luminaire.

A further advantage of this invention is that the signs displayed by this improved fixture are not restricted in viewing to the immediate vicinity of the luminaire but are visible from across a wide floor area due to the high installation location of the luminaire.

Another object of this invention is to provide a luminaire in which the upper compartment can be alternately used to provide services such as emergency or night lighting without affecting the main lighting provided by the luminaire while maintaining its advertising capability.

A further object of this invention is to provide a flexible suspended mounting capability that allows multi circuit entry connection in various forms and that provides an appealing visual appearance while providing increased installation security of a suspended fluorescent fixture due to the special design of its mounting attachment

Brief Description of the Drawings (Photographs)

Embodiments of the invention will now be described by way of example with reference to the following drawings in which:

Fig. 1 is a photograph showing the finished luminaire;

Fig. 2 is a photograph showing the luminaire of Fig. 1 in exploded view to show the component parts;

Figs. 3 through 29 show the construction of the finished luminaire of Fig. 1 by showing all the individual components and the step by step sequence in which they fit together to provide the various aspects of the invention;

Fig. 3 is a photograph showing the luminaire box or compartment;

Fig. 4 is a photograph of the back side or top of the luminaire box or compartment showing the corner slots;

Fig. 5 is a photograph of the luminaire box or compartment showing the perimeter rails attached and support tubes;

Fig. 6 is a photograph of the luminaire box or compartment showing the perimeter rails and support tubes attached and the wiring conduit;

Fig. 7 is a photograph showing the top wiring/suspension box and outlet box assembled together;

Fig. 8 is a photograph showing the top wiring/suspension box;

Fig. 9 is a photograph showing the wiring connection box;

Fig. 10 is a photograph showing the assembly attached to the support tubes;

Fig. 11 is a photograph showing the opaque shielding panels placed in rail and bent to touch the support tubes;

Fig. 12 is a photograph showing the shielding retainer item attached to retain shieldings;

Fig. 13 is a photograph showing the lamp item used to light the dome;

Fig. 14 is a photograph showing the removable advertising panels to be inserted on top of the permanent shielding shown on the side;

Fig. 15 is a photograph of the removable sign panel being inserted on top of the permanent panel;

Fig. 16 is a photograph showing the translucent advertising panel fully inserted;

Fig. 17 is a photograph showing the finished top dome with all the items installed;

Fig. 18 is a photograph of the bottom of the luminaire box or compartment;

Fig. 19 is a photograph of the curved socket support brackets;

Fig. 20 is a photograph of the socket support bracket shown with 10 socket positions filled with sockets;

Fig. 21 is a photograph of reflectors attached to the socket support item;

Fig. 22 is a photograph of another view of the socket support item with reflector items installed;

Fig. 23 is a photograph of the backside of socket support item and reflector item assembly with brackets item added;

Fig. 24 is a photograph of the modular wiring arrangement showing socket support brackets, reflector item, ballast item plus sockets and all wiring on one Assembly for quick insertion in box item;

Fig. 25 is a photograph of the complete assembly of socket support modular assembly in luminaire housing;

Fig. 26 is a photograph of the complete lower compartment of housing item showing 10 lamps installed;

Fig. 27 is a photograph of the alternate socket installation with ballasts item installed in the box in the conventional known art;

Fig. 28 is a photograph of the complete lower compartment with reflectors and socket supports, less lamps; and

Fig. 29 is a photograph of the complete lower compartment with lamps.

Detailed Description

Referring to Figure 1 there is shown the completed luminaire.

Referring to Figure 2 there is shown the luminaire component parts which comprise box 1, four perimeter angle rails 2, four support tubes 3, top wiring and suspension box 4, wiring connection box 5, socket support 6, socket support bracket 6A, two opaque shielding panels 7, two shielding retainer 8, opaque sign panels 9, a number of reflectors 10, a number of lamps 11, and a ballast 12.

Figure 3 shows the box 1 which preferably has the dimensions 24" x 24" x 4 ½ ".

Figure 4 shows the back side of the box 1 having corner slots.

To construct the luminaire, perimeter angle rails 2 and support tubes 3 are attached to the box 1 (as shown in Figure 5 and 6). A wiring conduit is added (as shown in Figure 6).

Figure 7 shows the top wiring and suspension box 4 and wiring connection box 5 assembled together. Figure 8 shows the top wiring and suspension box 4 alone while Figure 9 shows the wiring connection box 5 alone.

Figure 10 shows the how the top wiring and suspension box 4 and wiring connection box 5 is then assembled to the four support tubes 3.

Figure 11 shows the insertion of the two opaque shielding panels 7 which are placed in the perimeter angle rails 2 and bent such that they touch the support tubes 3.

Figure 12 shows that the shield retainers 8 are attached to retain the opaque shielding panels 7.

In Figure 13, a lamp 13 is attached to light the luminaire.

In Figure 14, the removable opaque sign panels 9 are shown which are inserted on top of the permanent opaque shielding panels 7. Figure 15 shows how the insertion takes place and Figure 16 shows the opaque sign panels 9 fully inserted.

Figure 17 shows the completed luminaire from a different angle than Figure 1.

Figure 18 shows the bottom of the luminaire box 1.

Figure 19 shows the socket supports 6.

In Figure 20, the socket supports 6 have been filled with sockets to receive the reflectors 10 (as shown in Figure 21 and 22).

Figure 21 shows the back side of Figure 21 with socket support bracket 6A added.

The modular wiring arrangement is shown in Figure 24 with the socket supports 6, reflectors 10, plus sockets and all wiring on one Assembly for quick insertion in the box 1.

Figure 25 shows the complete assembly of socket support modular assembly in the box 1.

Figure 26 shows the ten lamps 11 installed.

In Figure 27, there is shown an alternate socket 6 installation with ballast 12 installed in box 1.

Figure 28 shows the complete lower compartment with reflectors and socket support, but without the lamps, while Figure 29 shows the lamps 11 installed.

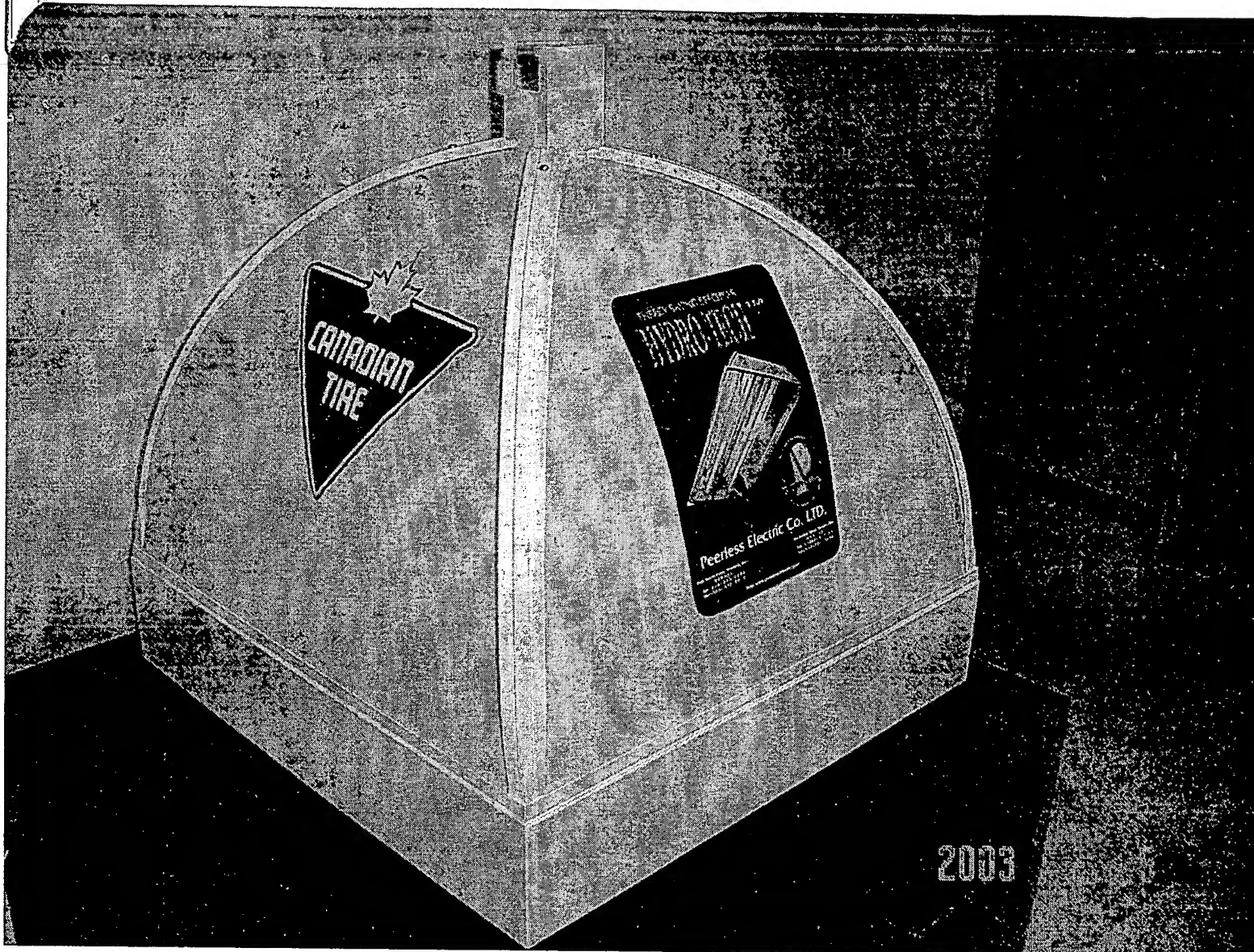
It will be understood that modifications can be made without departing from the scope of the invention.

CLAIMS

The embodiments of the inventions in which an exclusive property or privilege is claimed are defined as follows:

1. Each and every novel feature or novel combination of features herein disclosed.

**R. WILLIAM WRAY & ASSOCIATES
BOX 2760 - STATION D
OTTAWA, CANADA K1P 5W8
PATENT AGENT FOR THE APPLICANT**



The Finished Luminaire

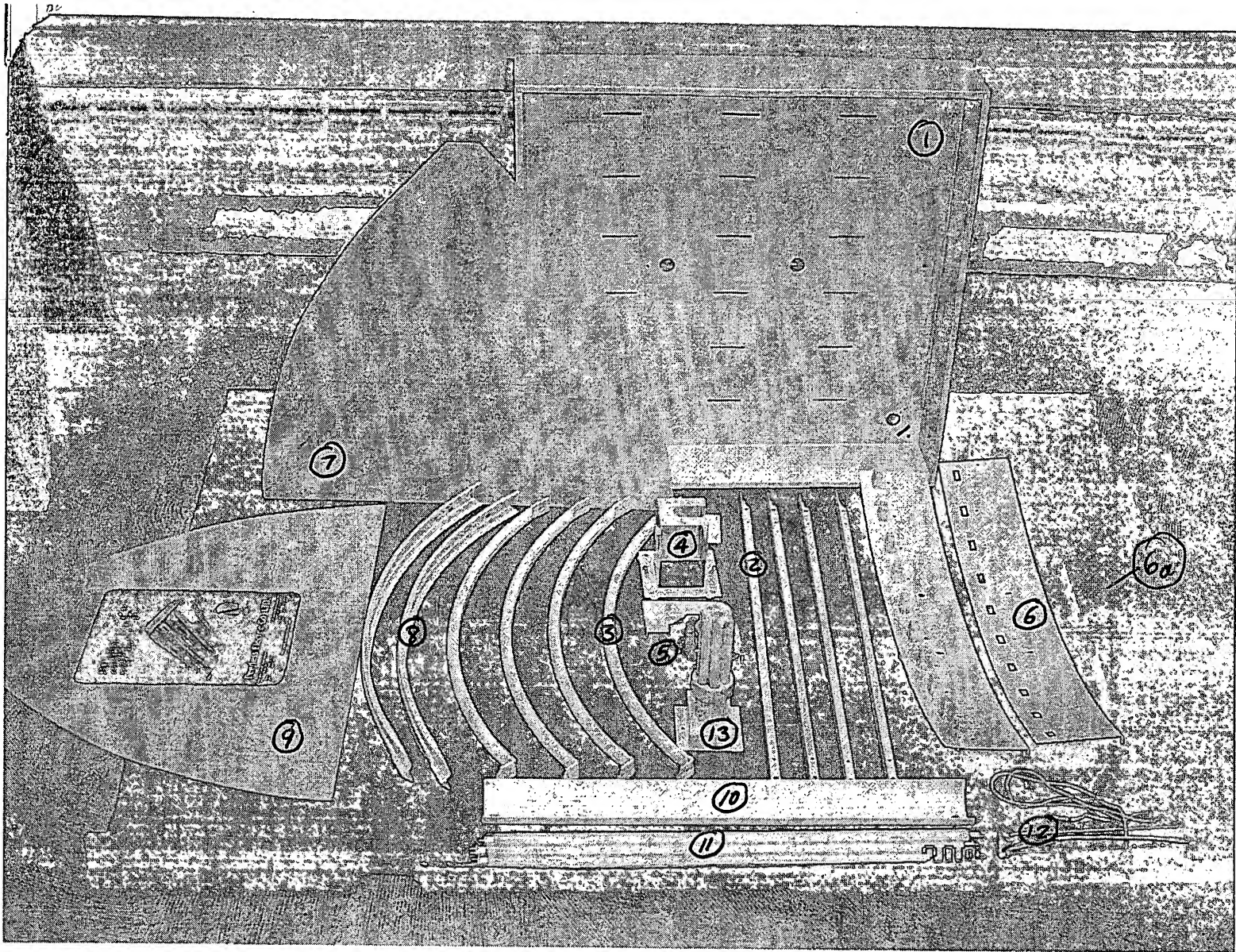
FIG. 1

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①



Luminaire Component parts

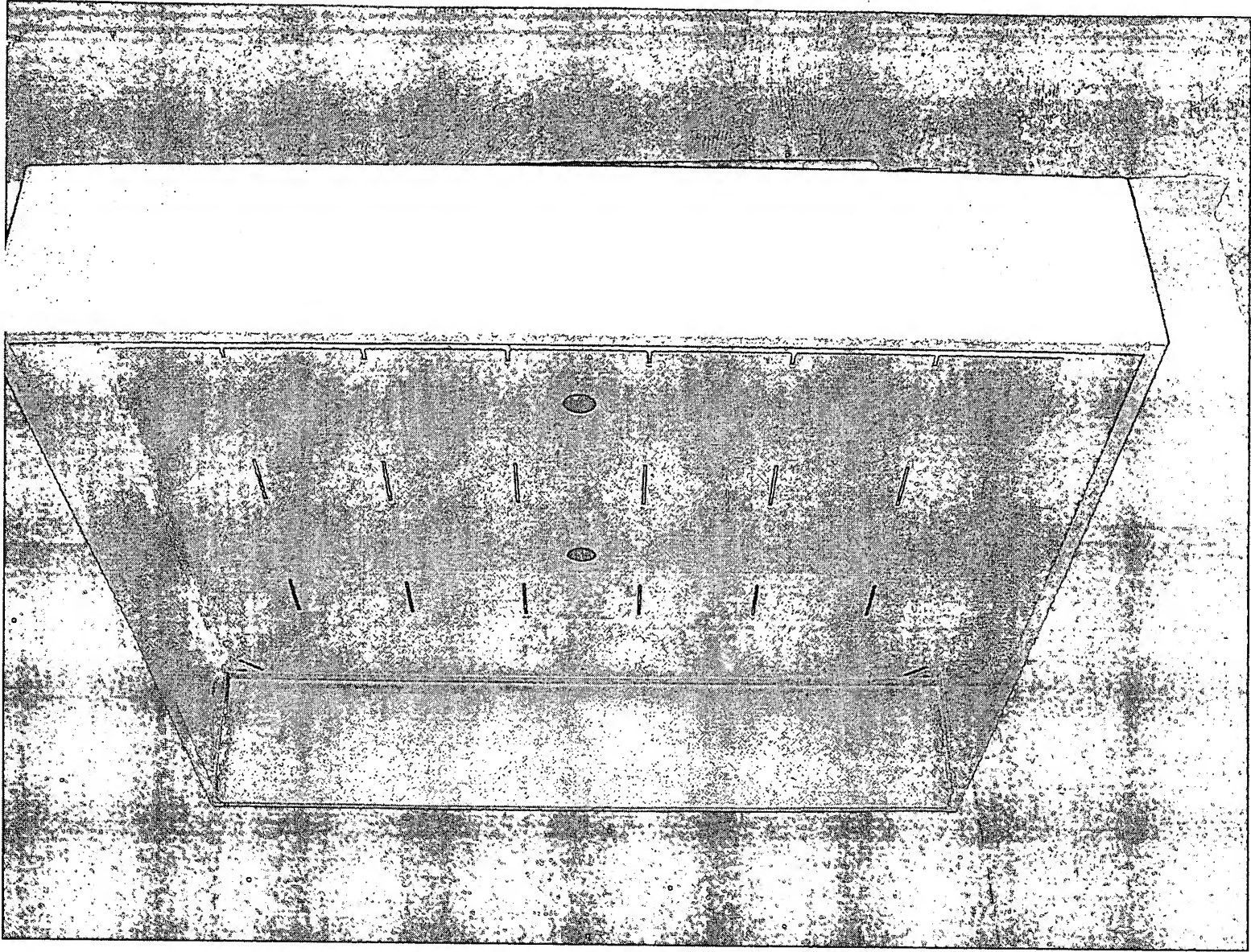
- 1- Box
- 2- Perimeter Angle Rail
- 3- Support tubes
- 4- Top wiring & Suspension Box.
- 5- wiring connection box.
- 6- ~~Reflector~~ Socket Support
- 6a- Socket support Bracket
- 7- Opaque Shielding Panels.
- 8- Shielding Retainer
- 9- Opaque Sign Panels
- 10- Reflectors.
- 11- Lamps.
- 12- Ballasts.

FIG. 2

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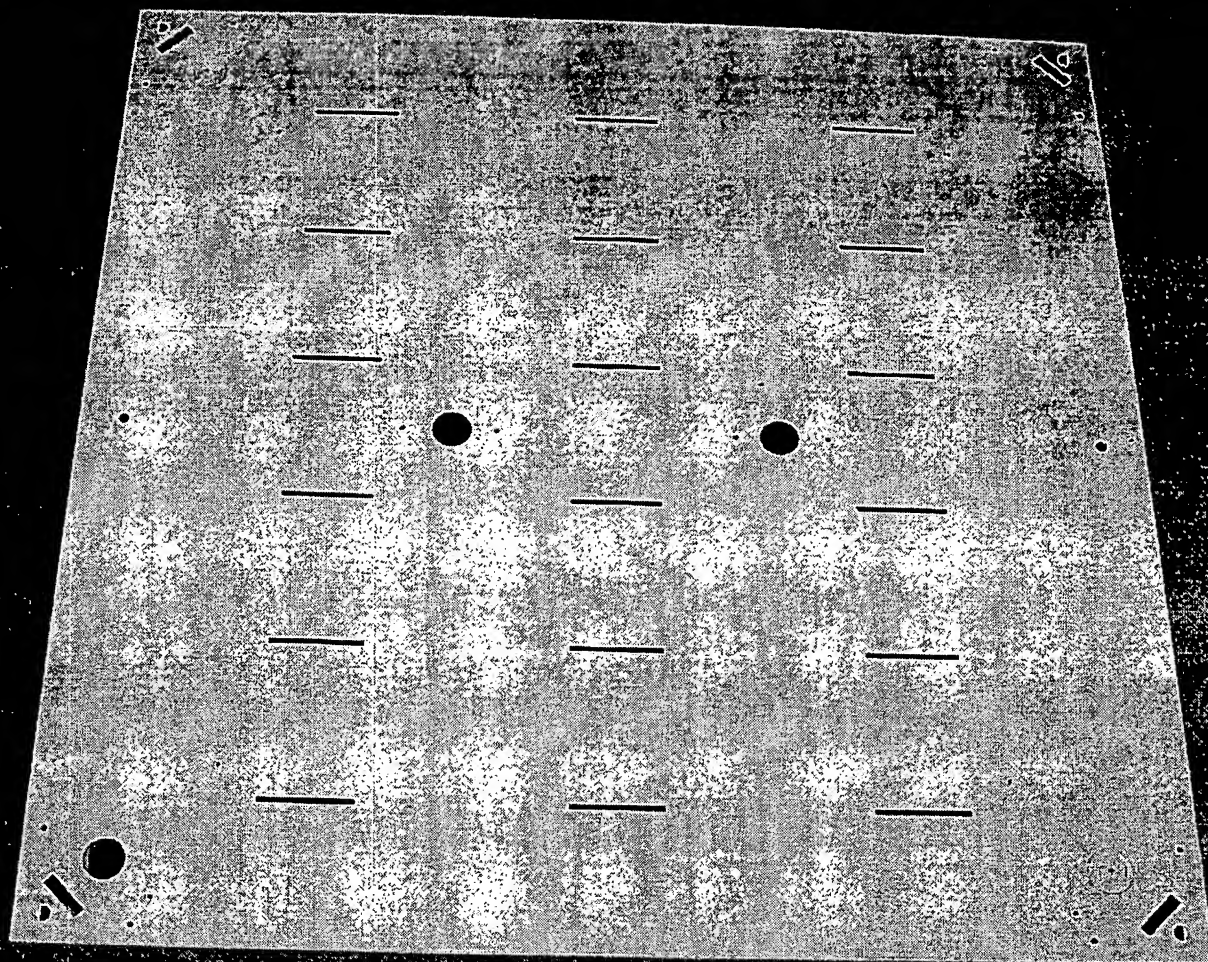
Item 1 The luminaire Box or Compartment 24"x24"x4 1/2"

FIG. 3.

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Item 1 Back Side DR Top showing corner slots

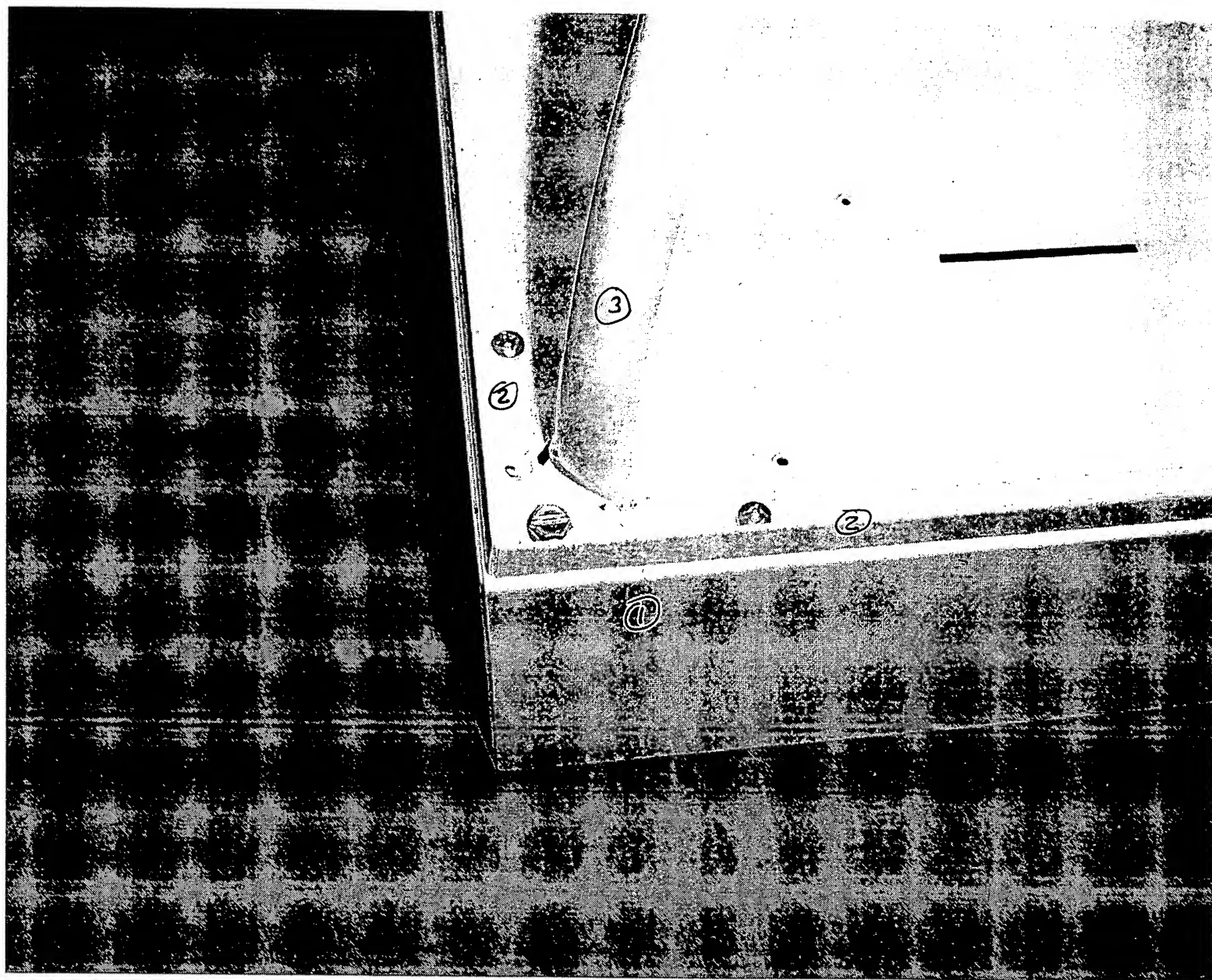
FIG. 4.

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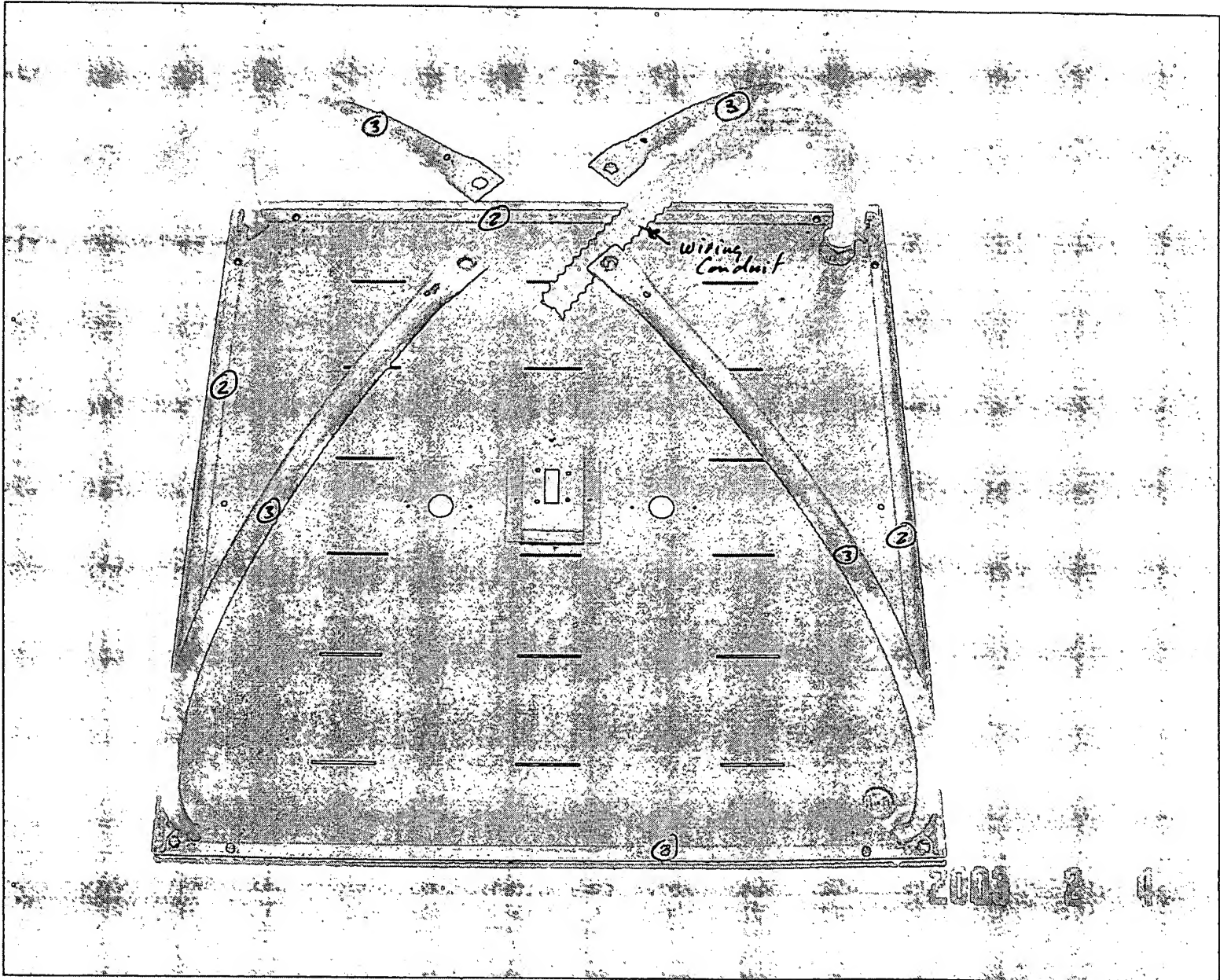
Item ① Box with perimeter Rails ② attached & Support tubes ③

FIG. 5

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DSC00252 ⑤



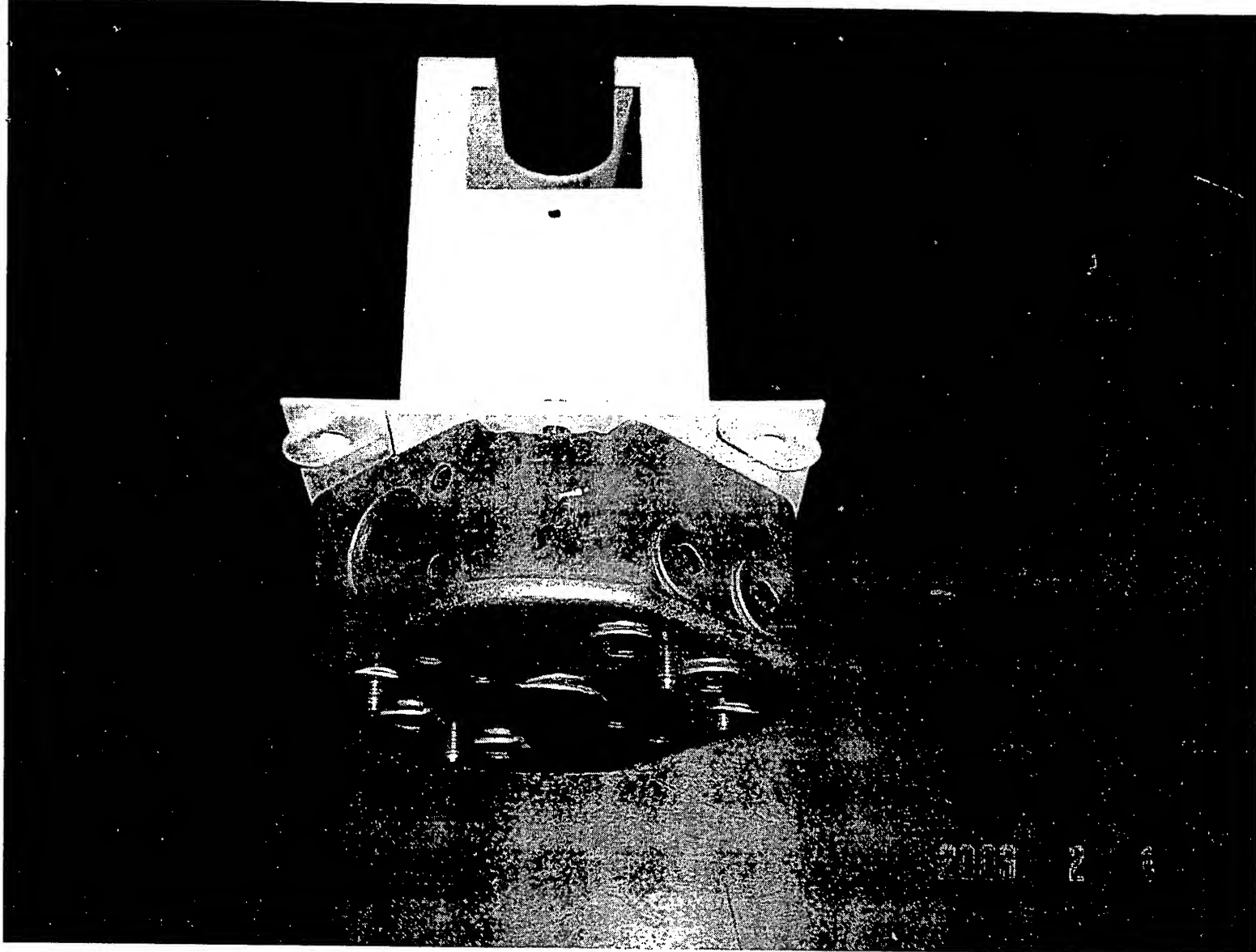
Item ① with all Rails ② & Support tubes ③ attached
& wiring Conduit

FIG. 6.

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DSC00 255 (6)



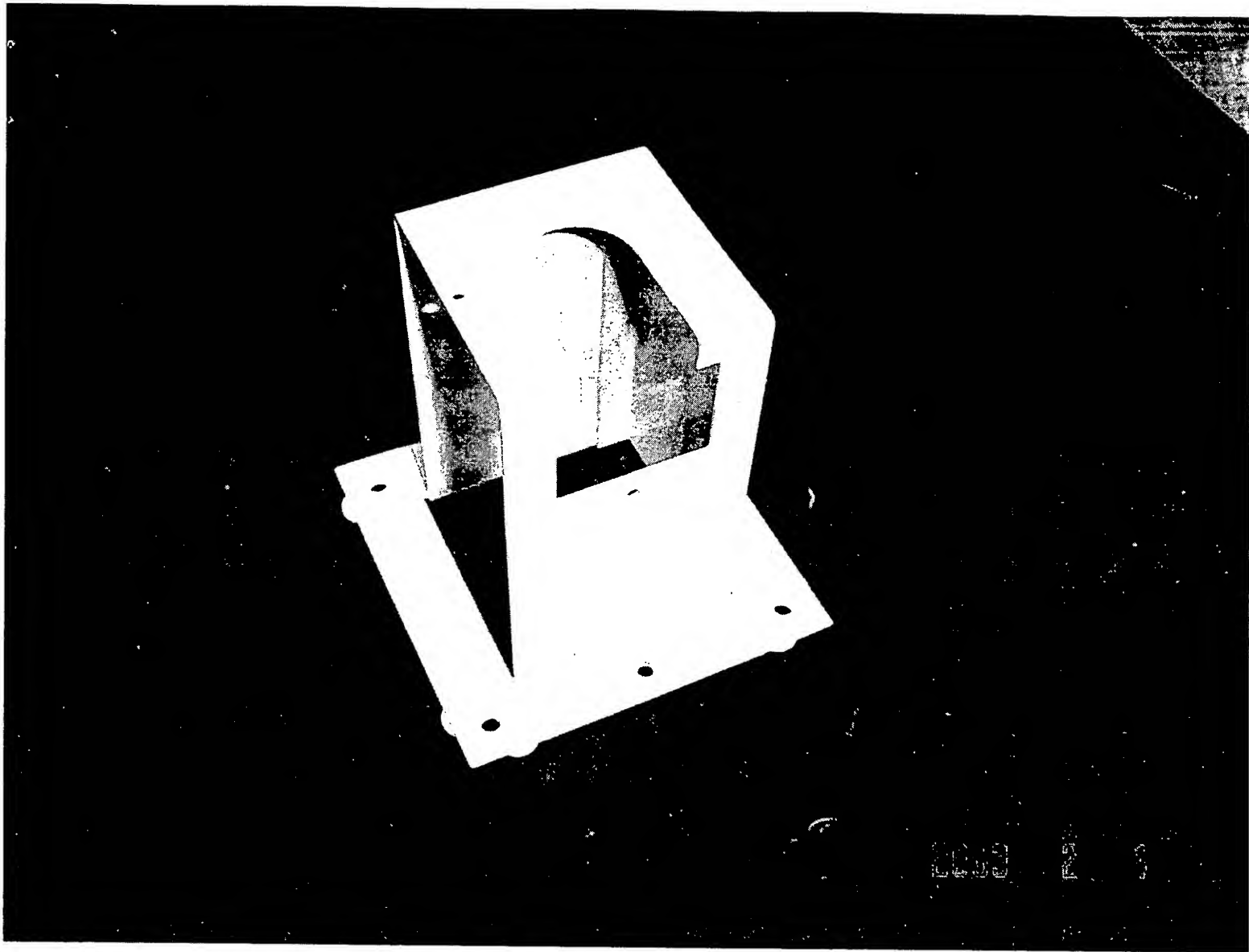
Items ④ Topwiring/Suspension Box & item ⑤ outlet box
assembled together

FIG. 7

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DSC 00268 ⑦



item (4) Top wiring/suspension box.

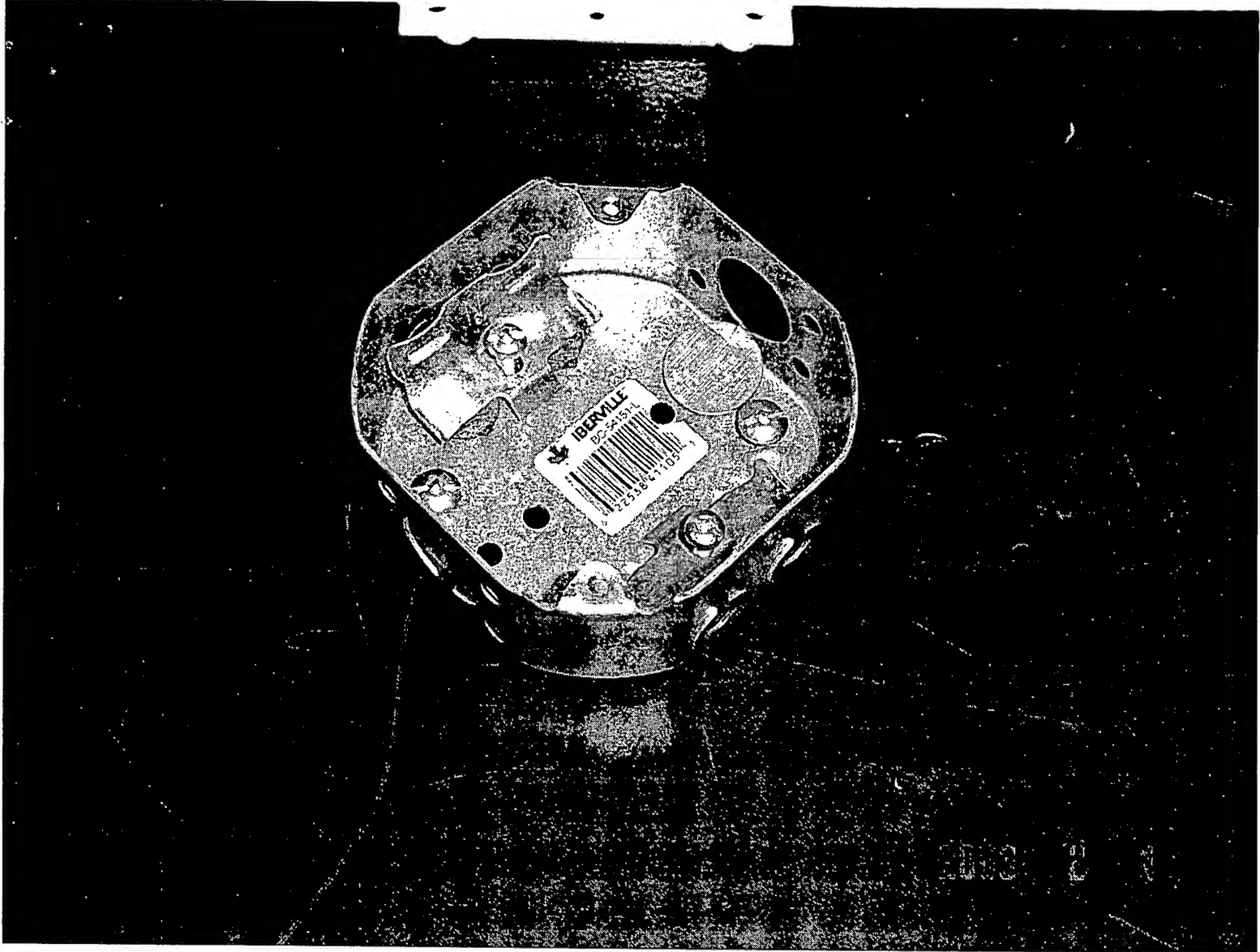
FIG 8

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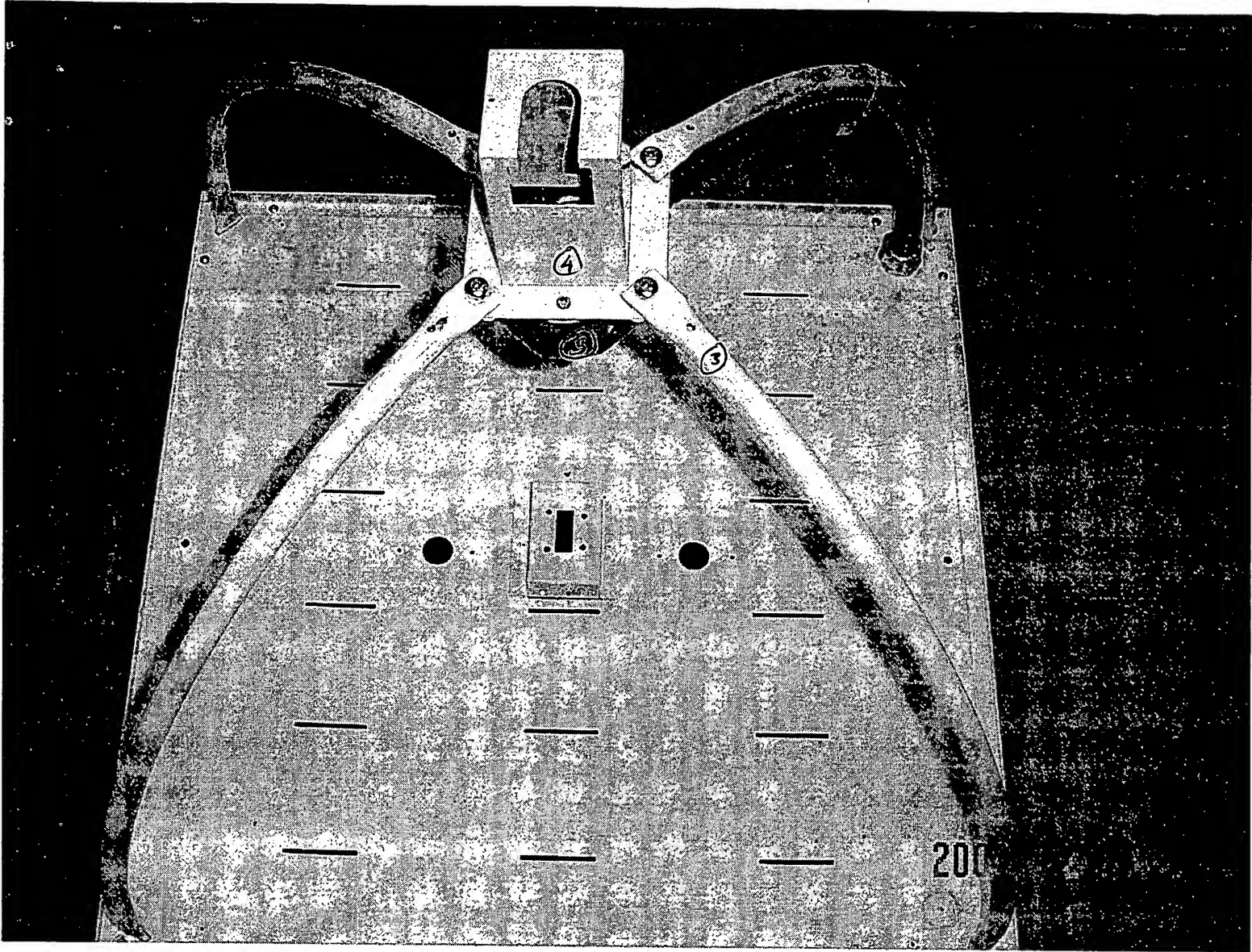
item ⑤ wiring connection box

FIG. 9

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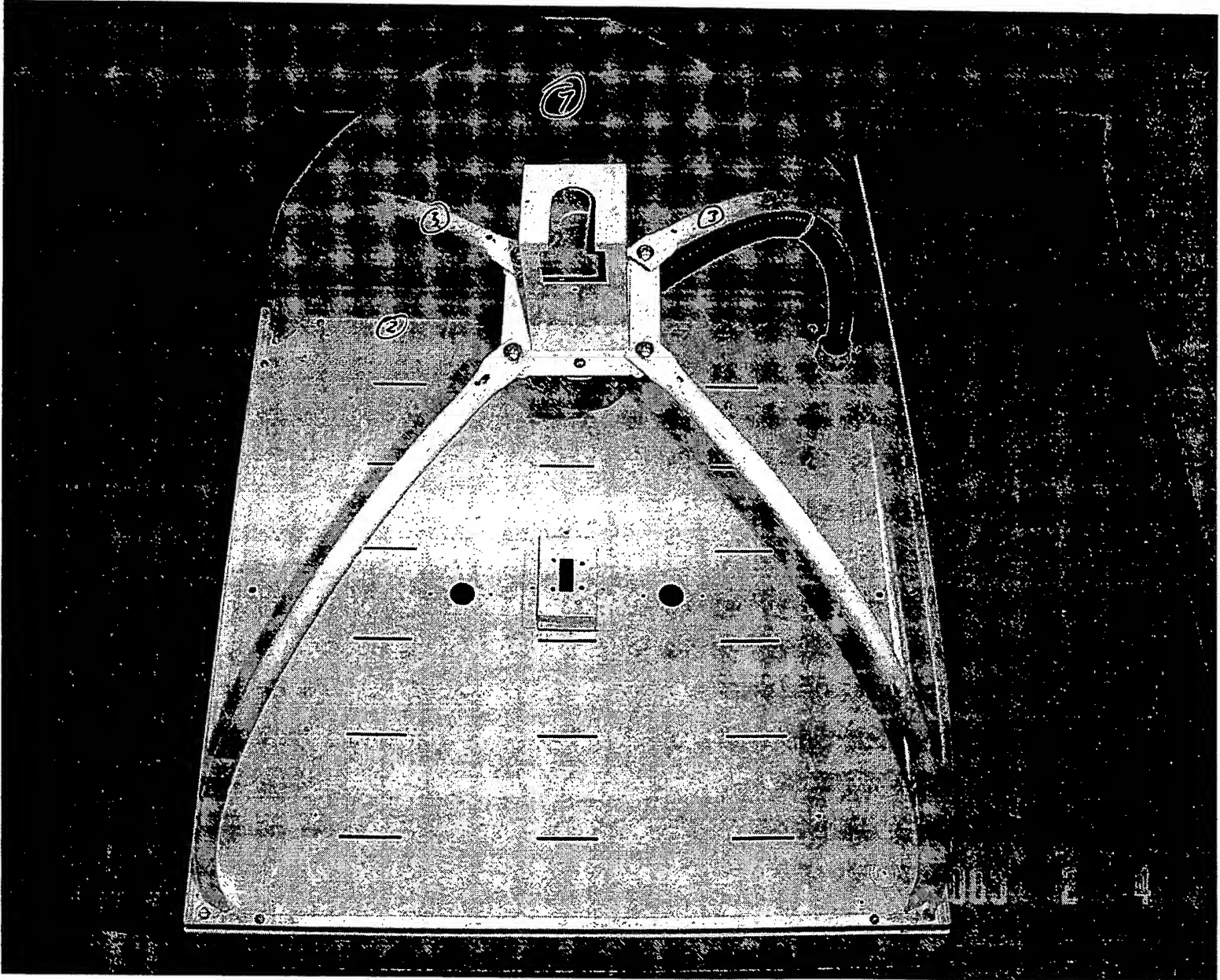
Items ④&⑤ Assembly attached to Support tubes③

FIG 10.

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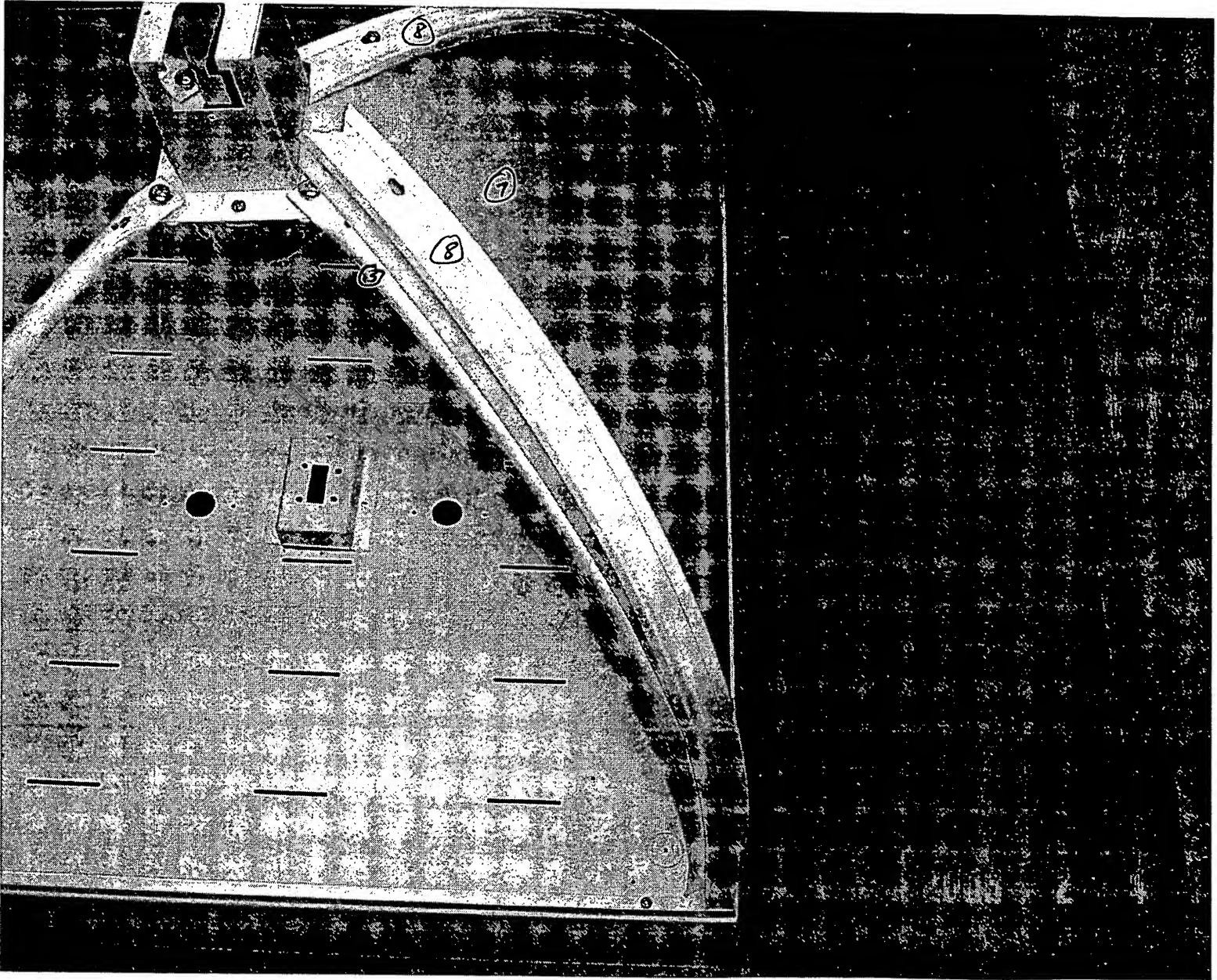
item (7) Opaque Shielding Panels placed in Rail (2)
 & bent to touch Support tubes (3)

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FIG. 11

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DSC00273 (11)



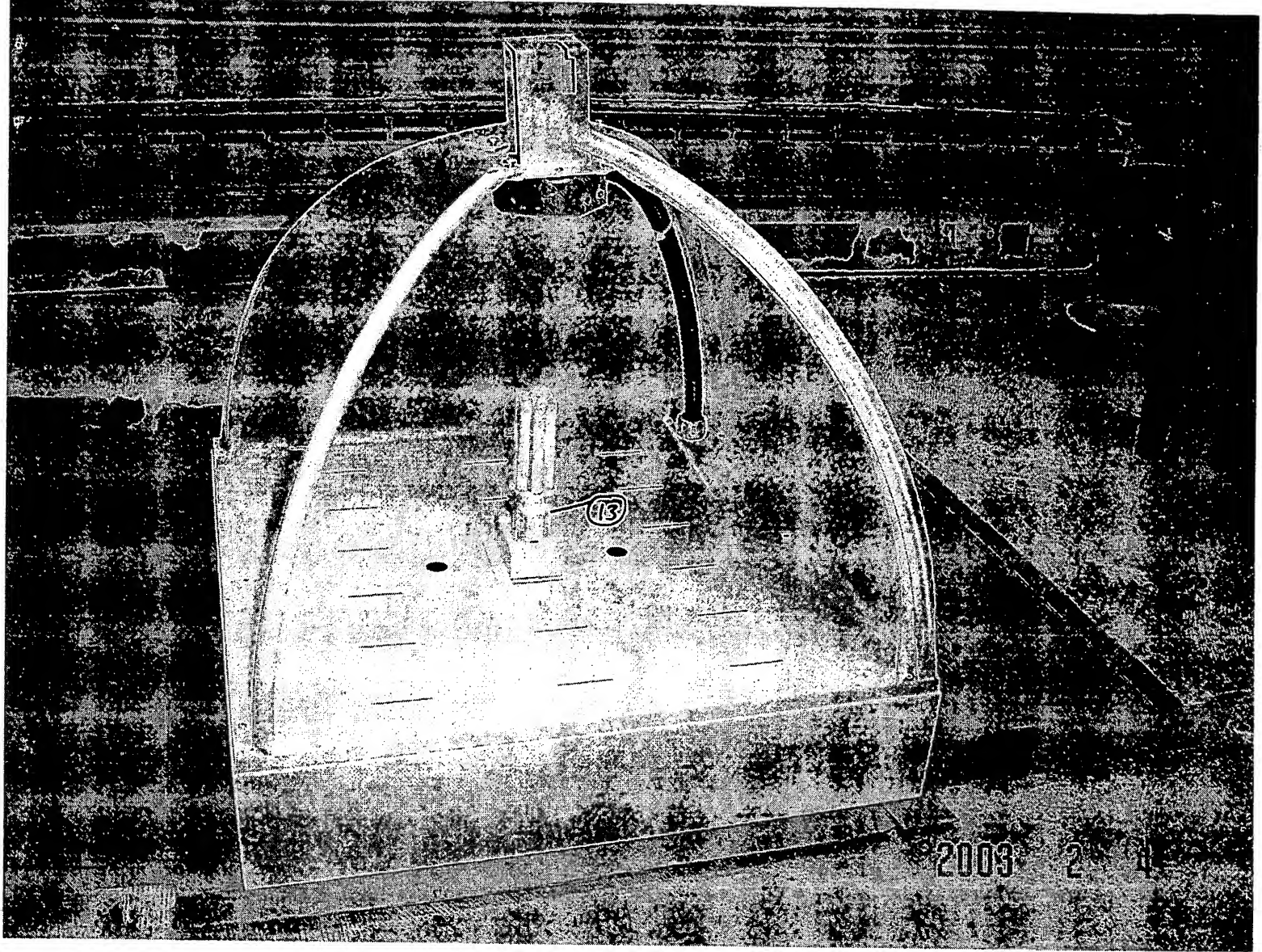
Shielding retainer item ⑧ attached to retain Shieldings. ⑦

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2003-02-06

FIG. 12.

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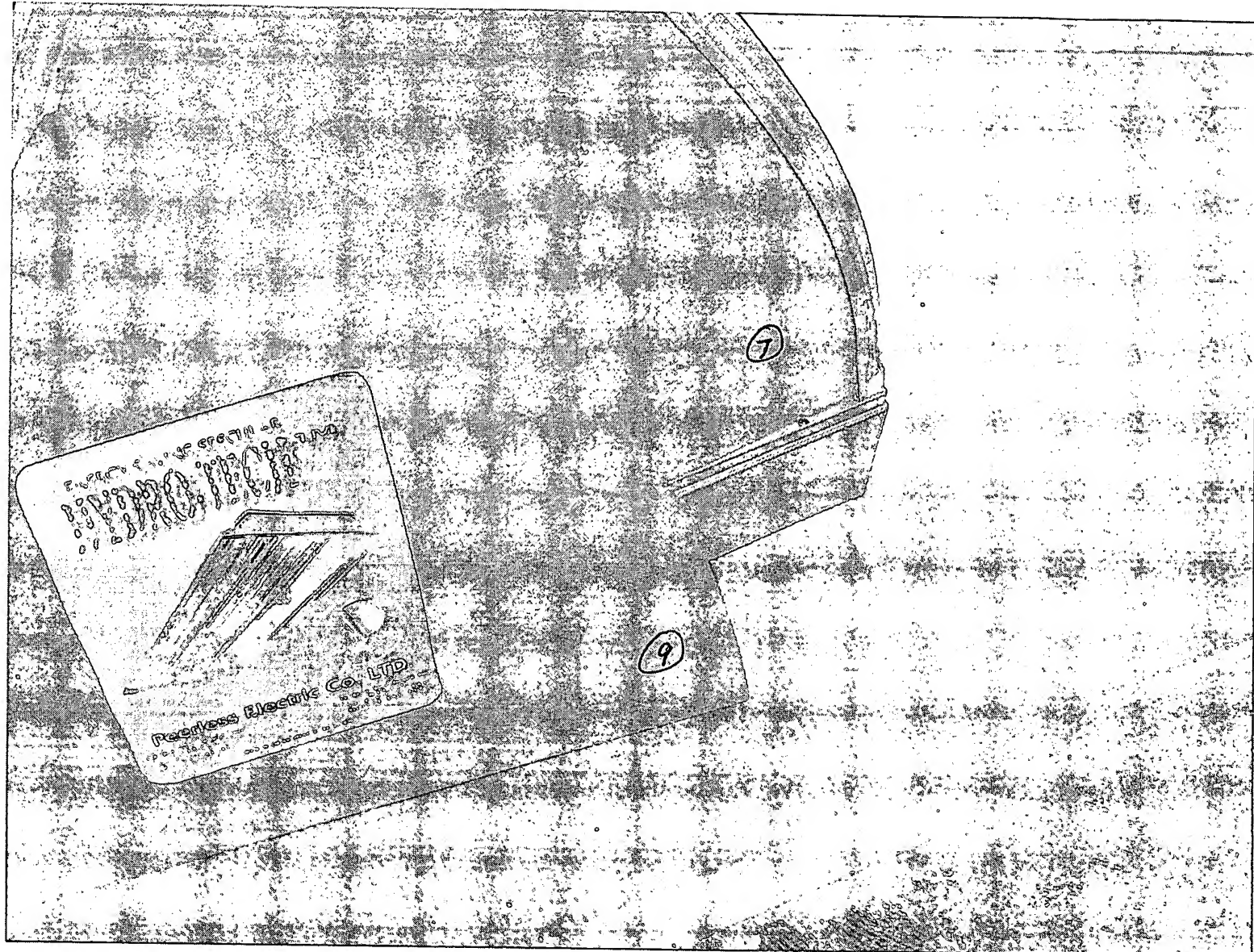
Lamp item (13) to light dome.

FIG. 13.

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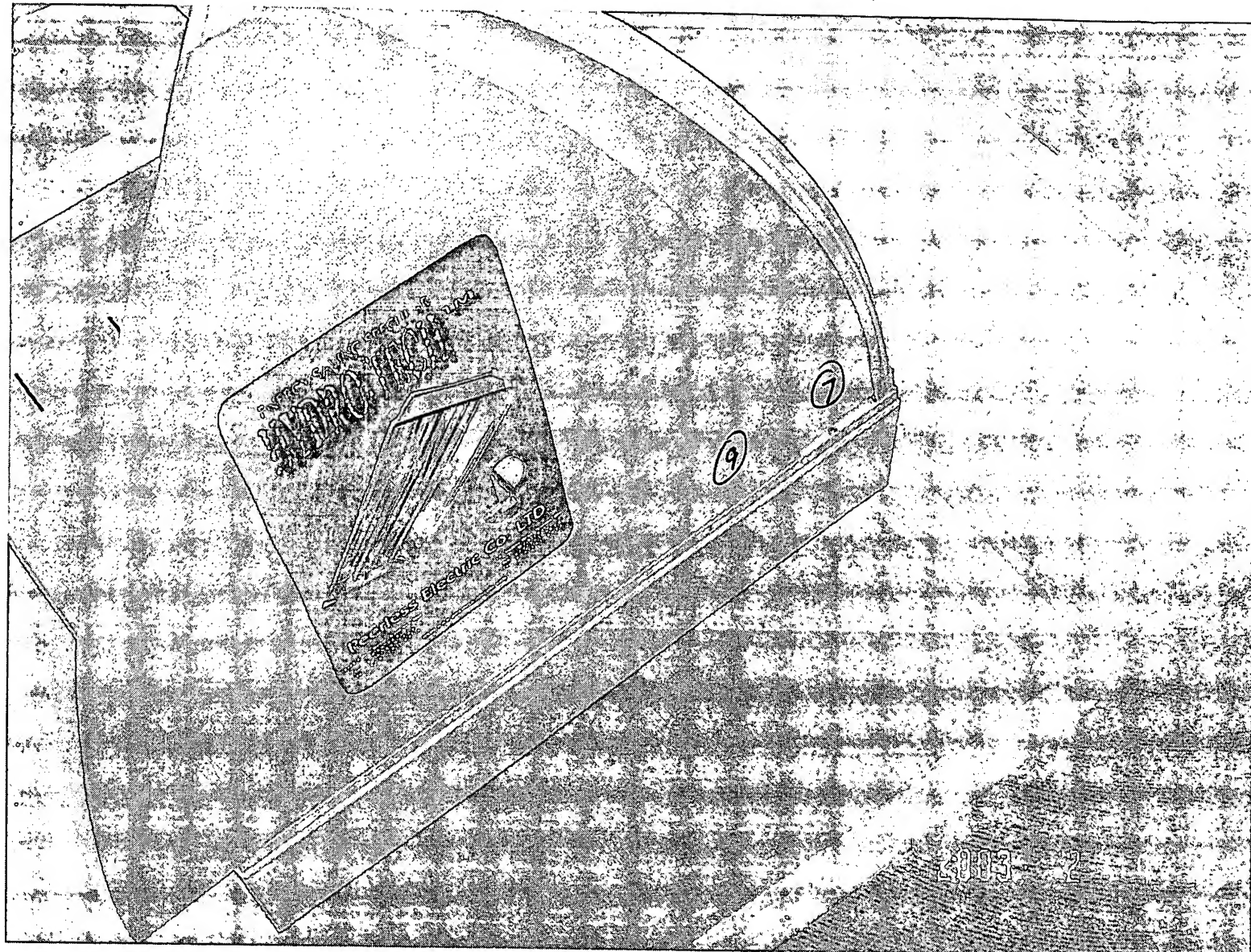


Removable Advertising panels item (9) ^{to be} inserted on top of permanent shielding (7) shown on the side.

FIG. 14

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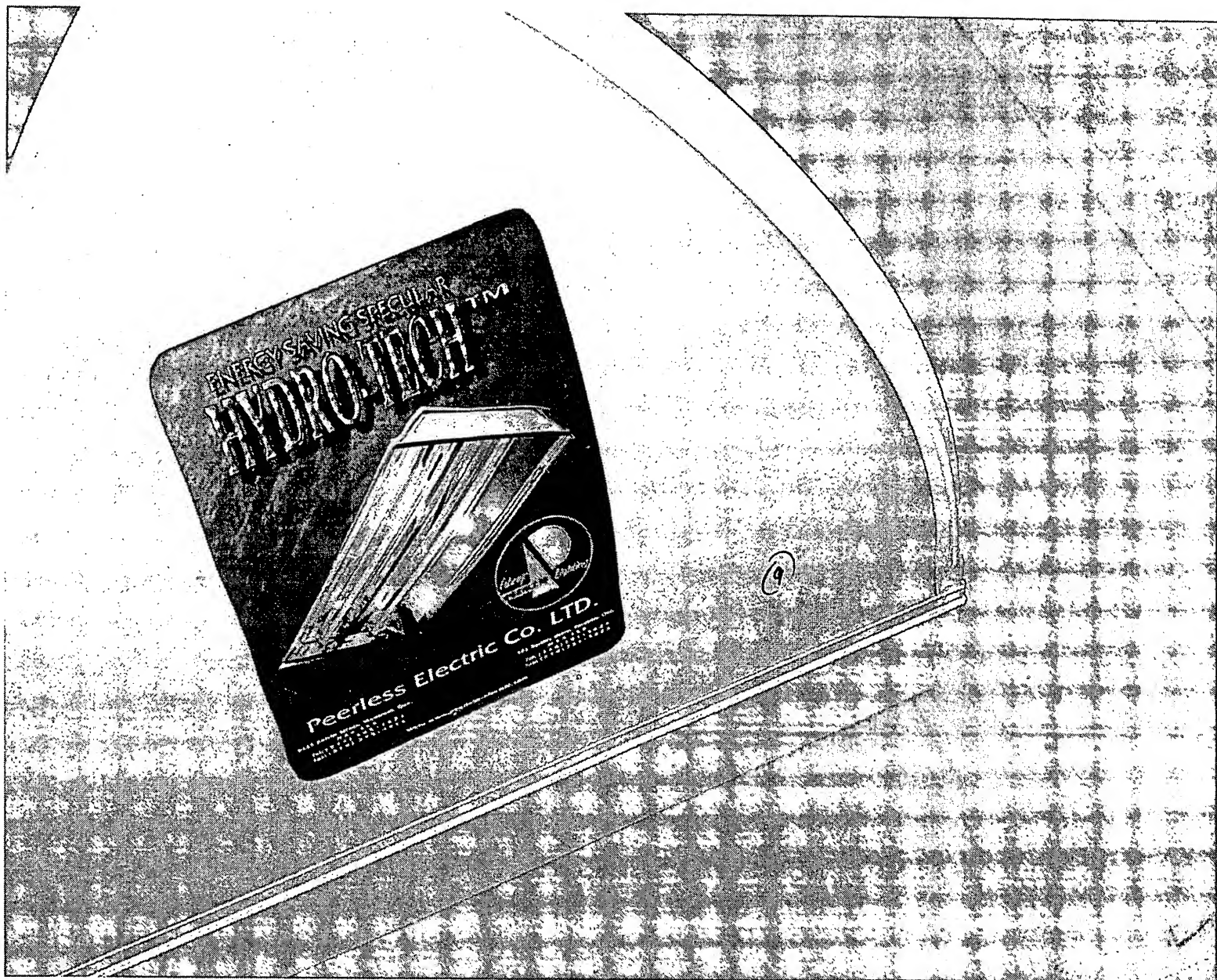
Removable. sign panel (9) ^{being} inserted on top of permanent panel (7)

Fig. 15.

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Translucent Advertising panel (9) fully inserted.

FIG. 16.

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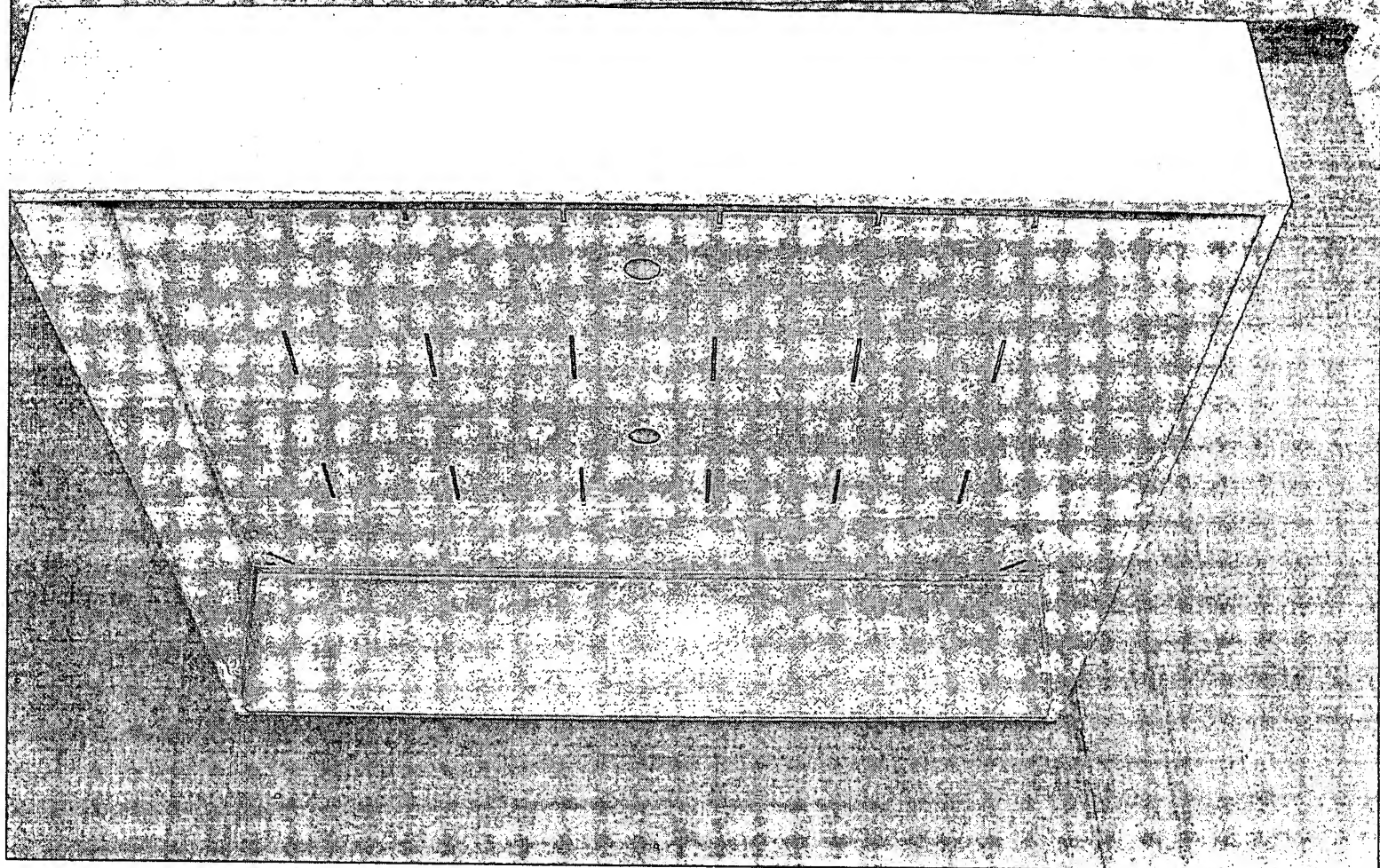
Finished top dome with all items installed

FIG. 17.

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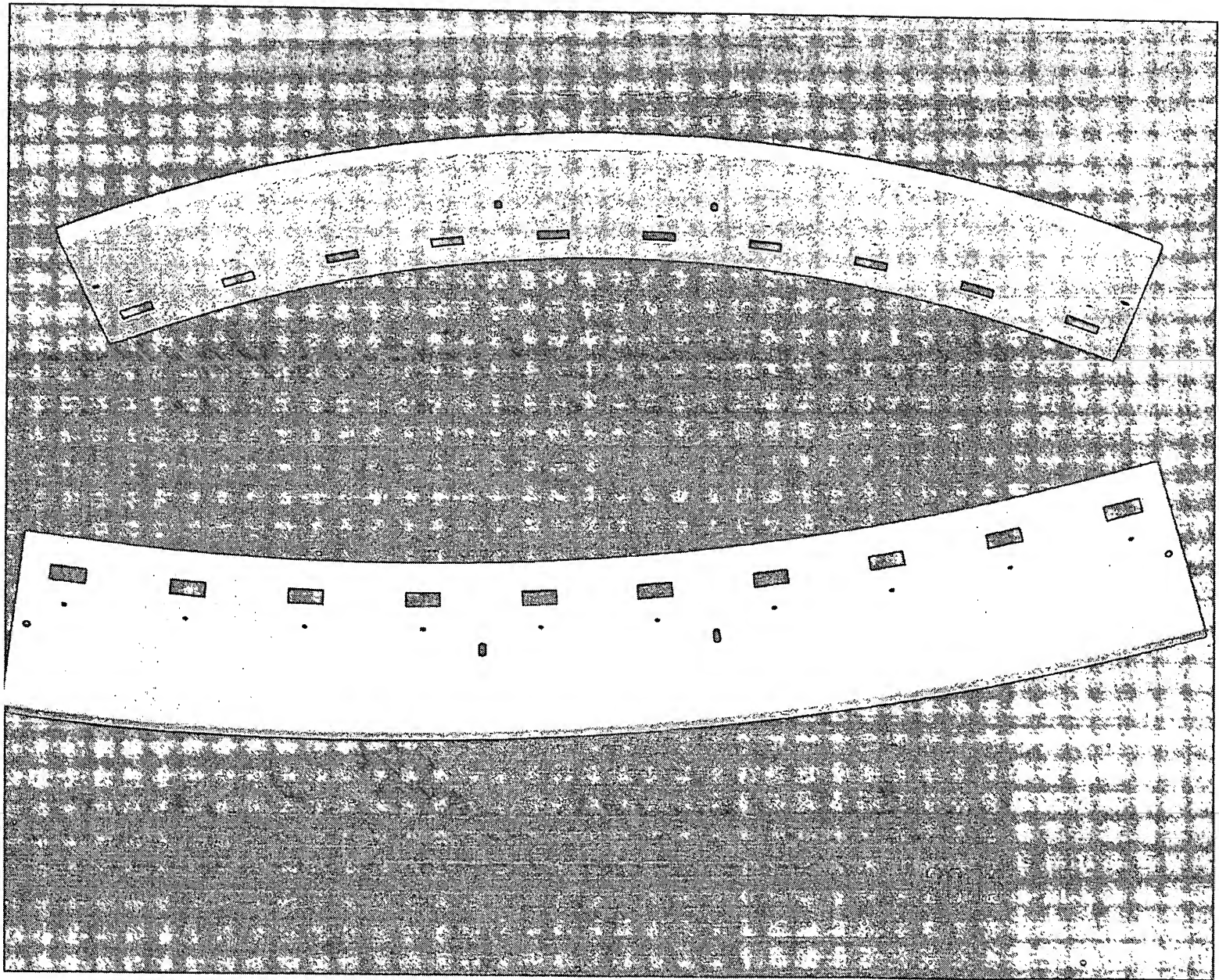
The bottom of the Luminair Box ①

FIG. 18

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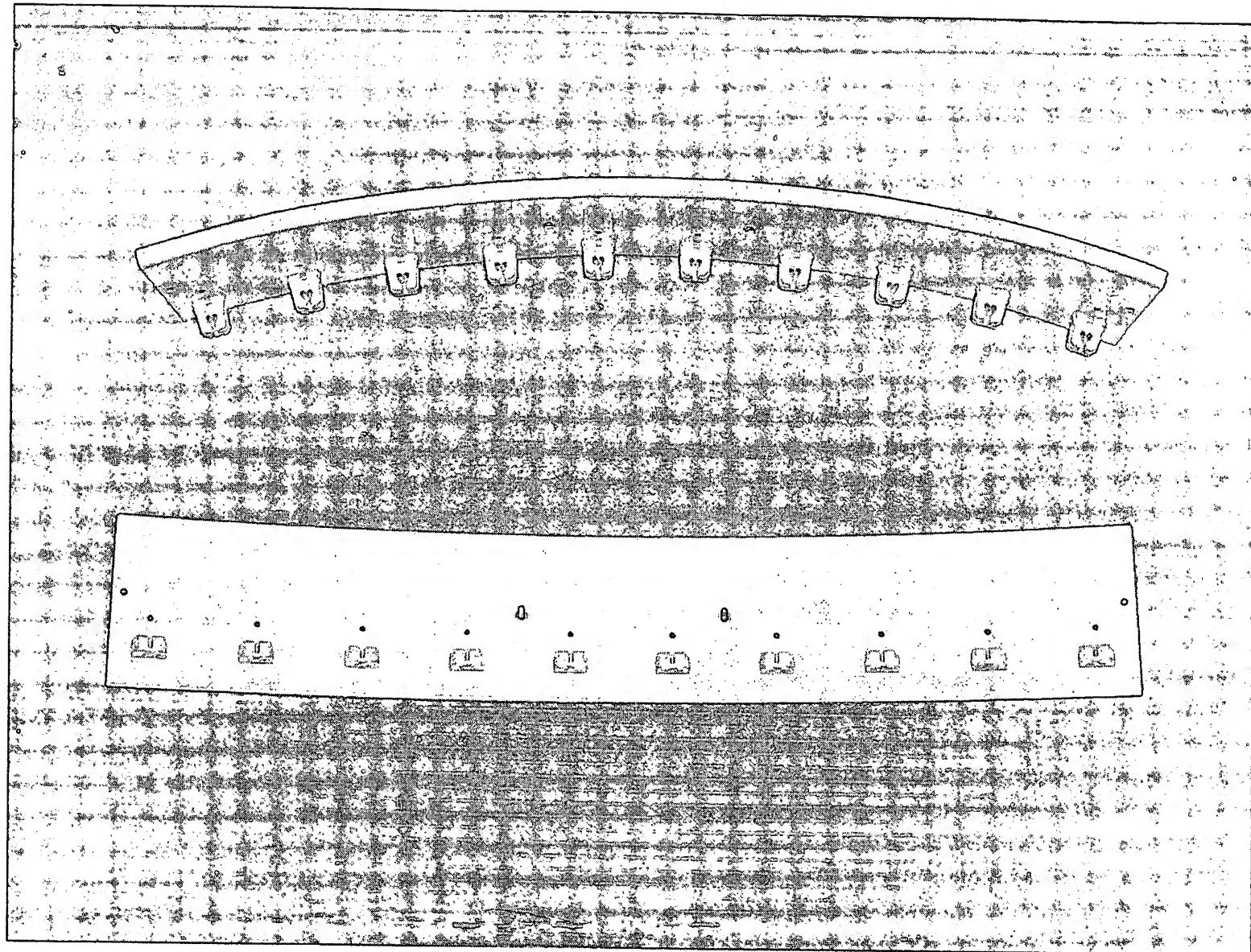
The Curved Socket Support brackets item ⑥

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FIG. 19.

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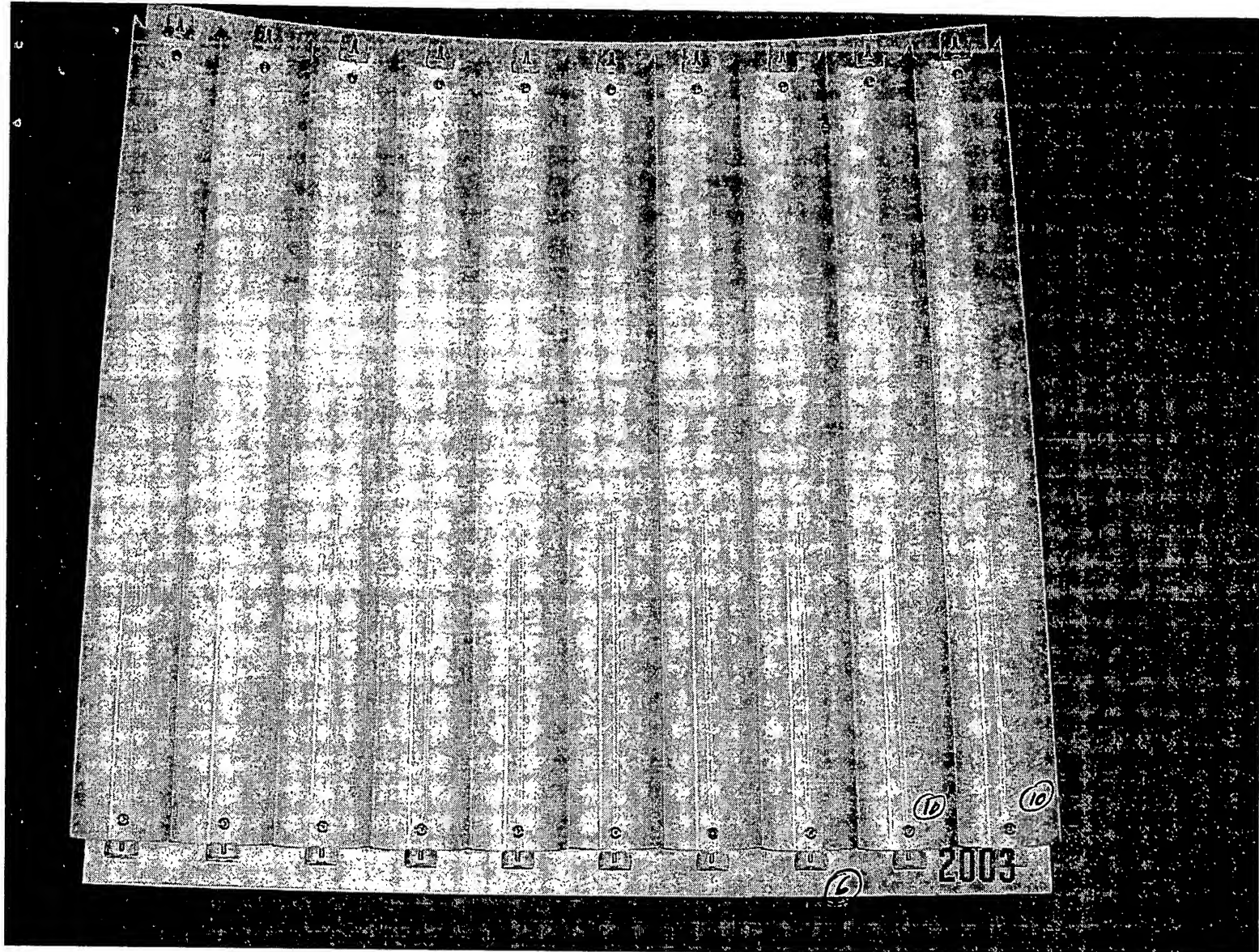
item ⑥ Socket Support bracket shown with 10
Socket positions filled with Sockets.

FIG. 20.

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DSC 00245 (20)



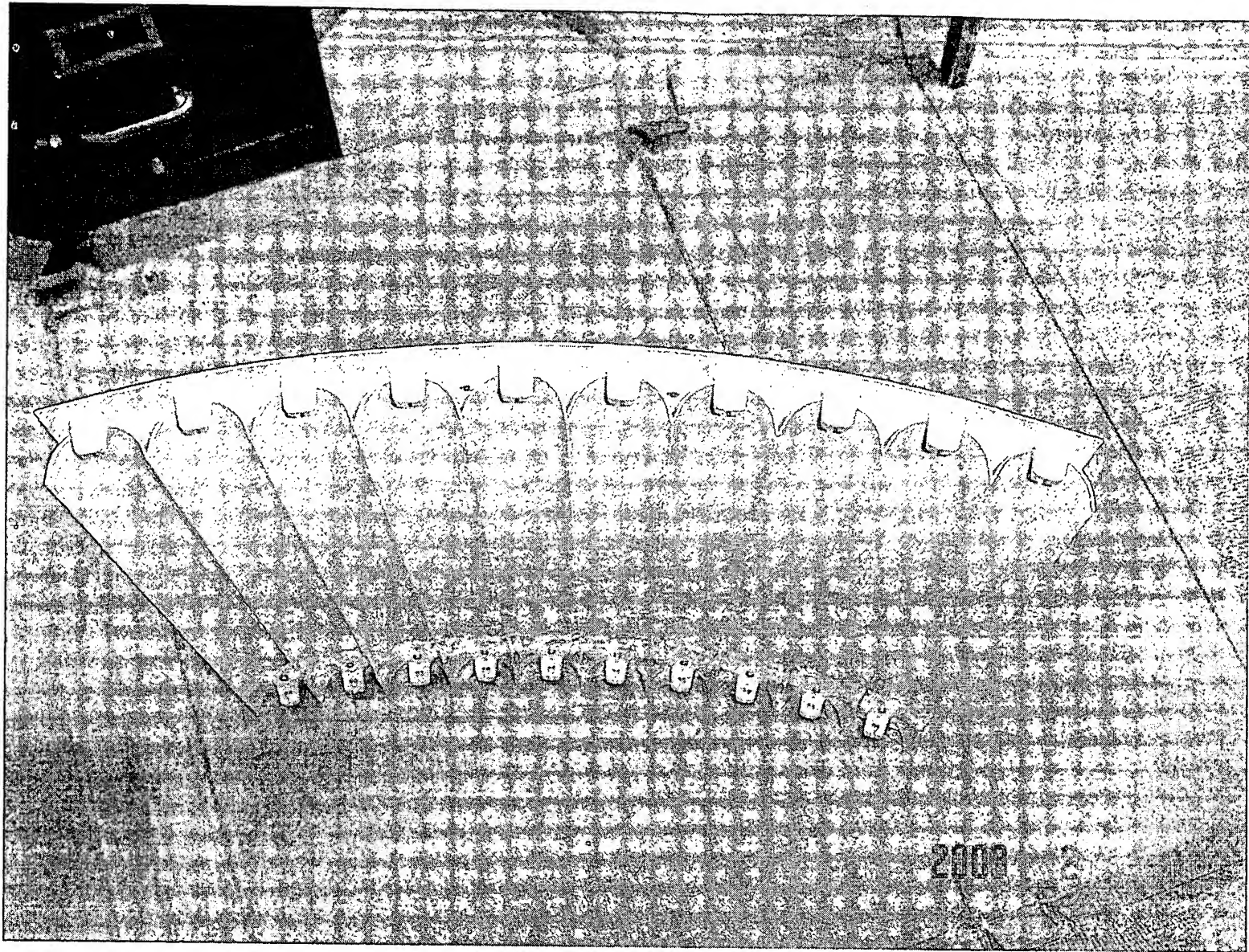
Reflectors item (10) attached to the Socket Supports item (6)

FIG. 21

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DSG 00313 (21)



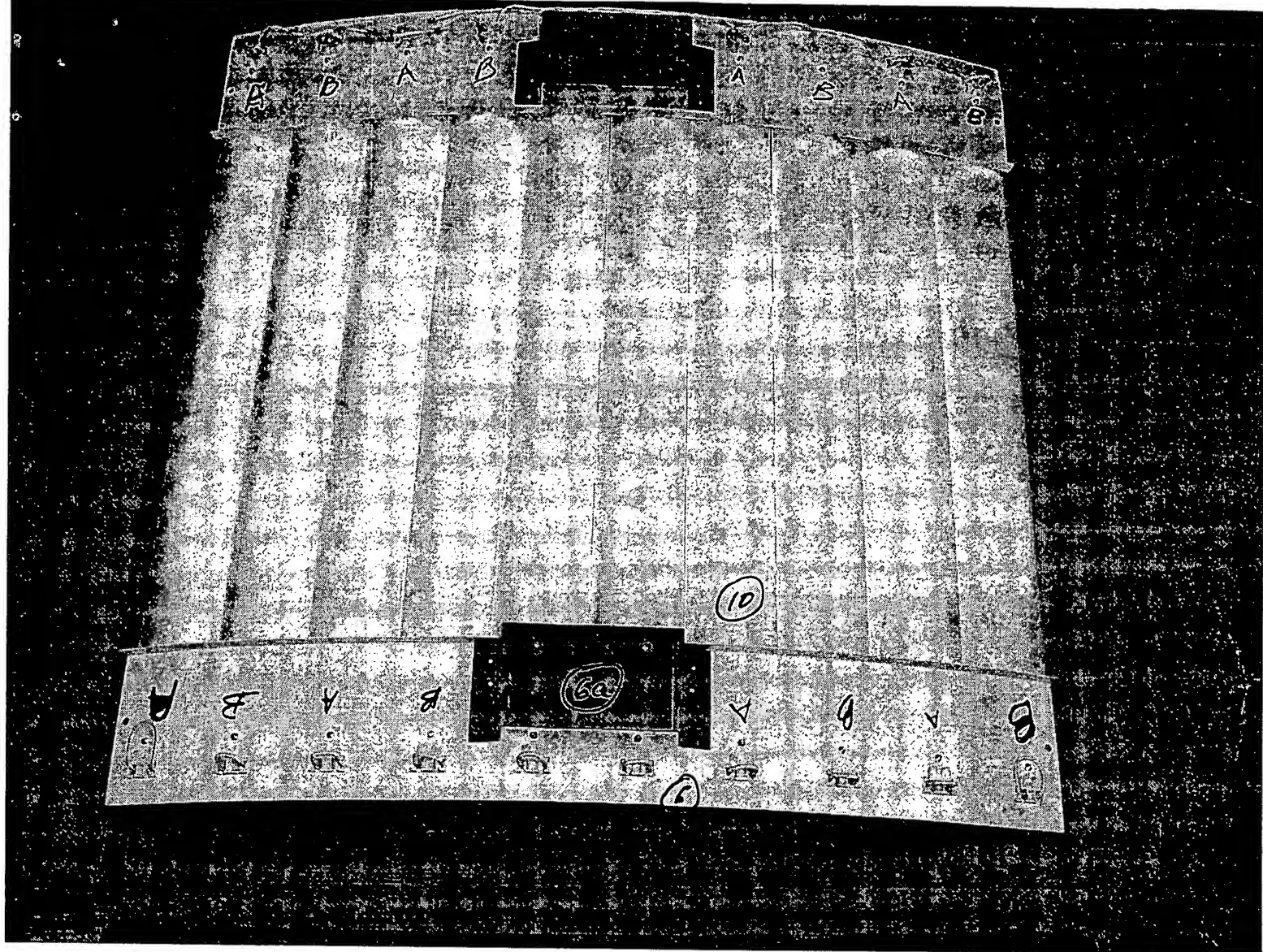
Another view of Socket Support item ⑥ with reflectors
item ⑩ installed

FIG. 22.

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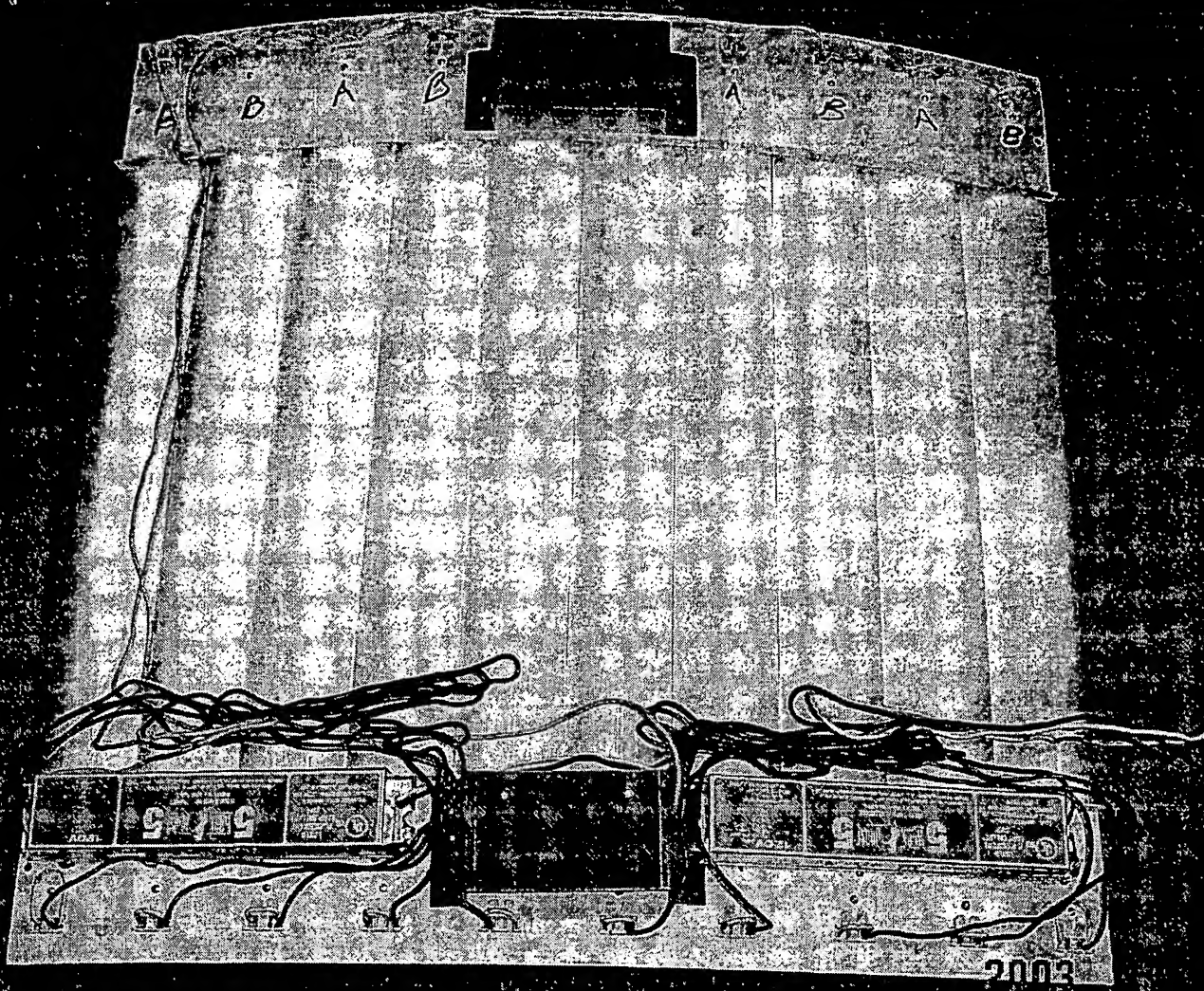
Backside of Socket Support item (6) & reflector item (10)
assembly with Brackets item (6a) added

FIG. 23.

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DSC 00315
(2)



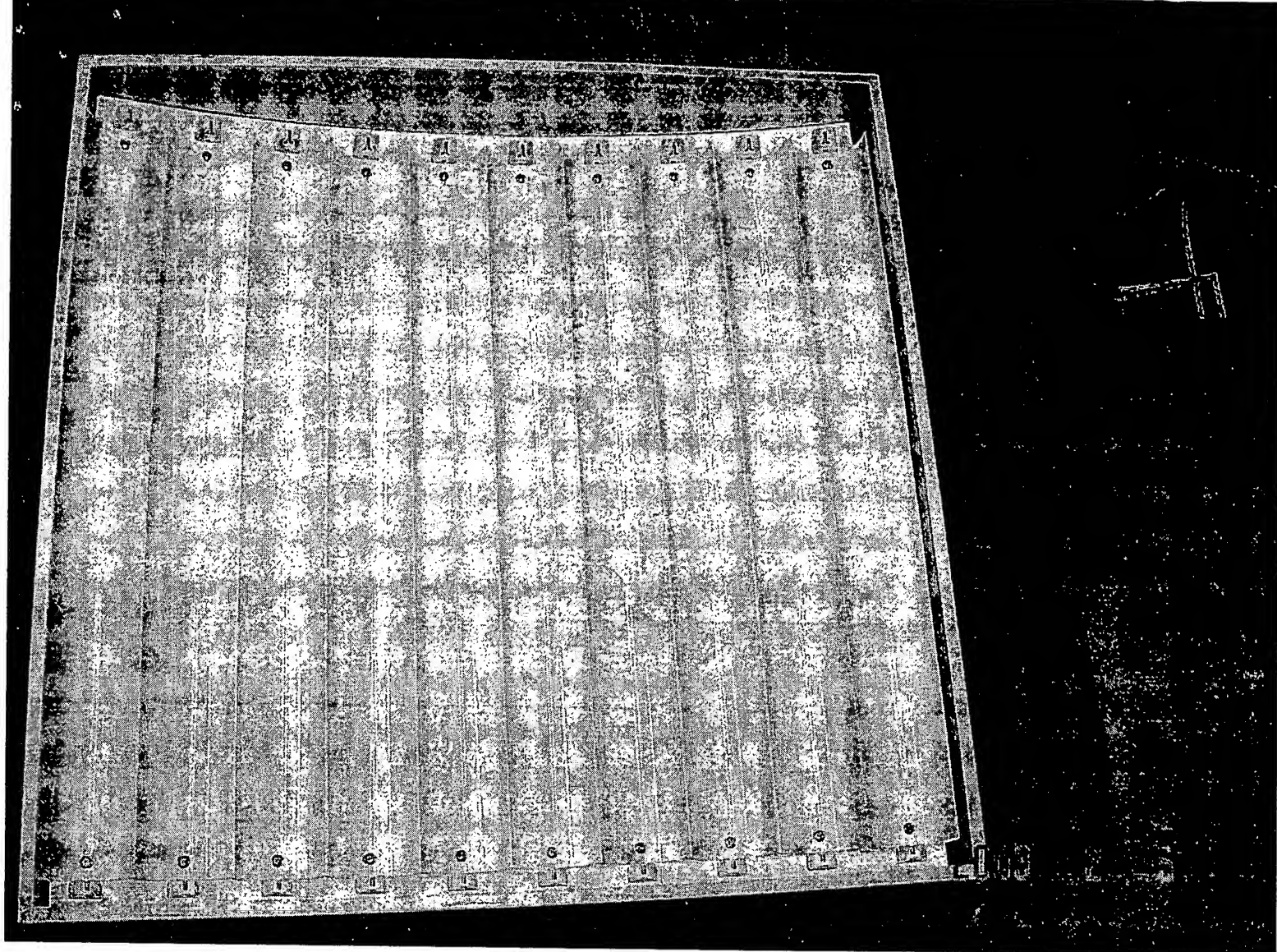
Modular wiring arrangement Showing
 Socket Support brackets (6), Reflectors item (10), Ballasts
 item (12) plus Sockets & all wiring on one Assembly
 for quick insertion in box item (1)

Fig. 24.

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Complete assembly of Socket Support modular
assembly in Luminaire Housing ①

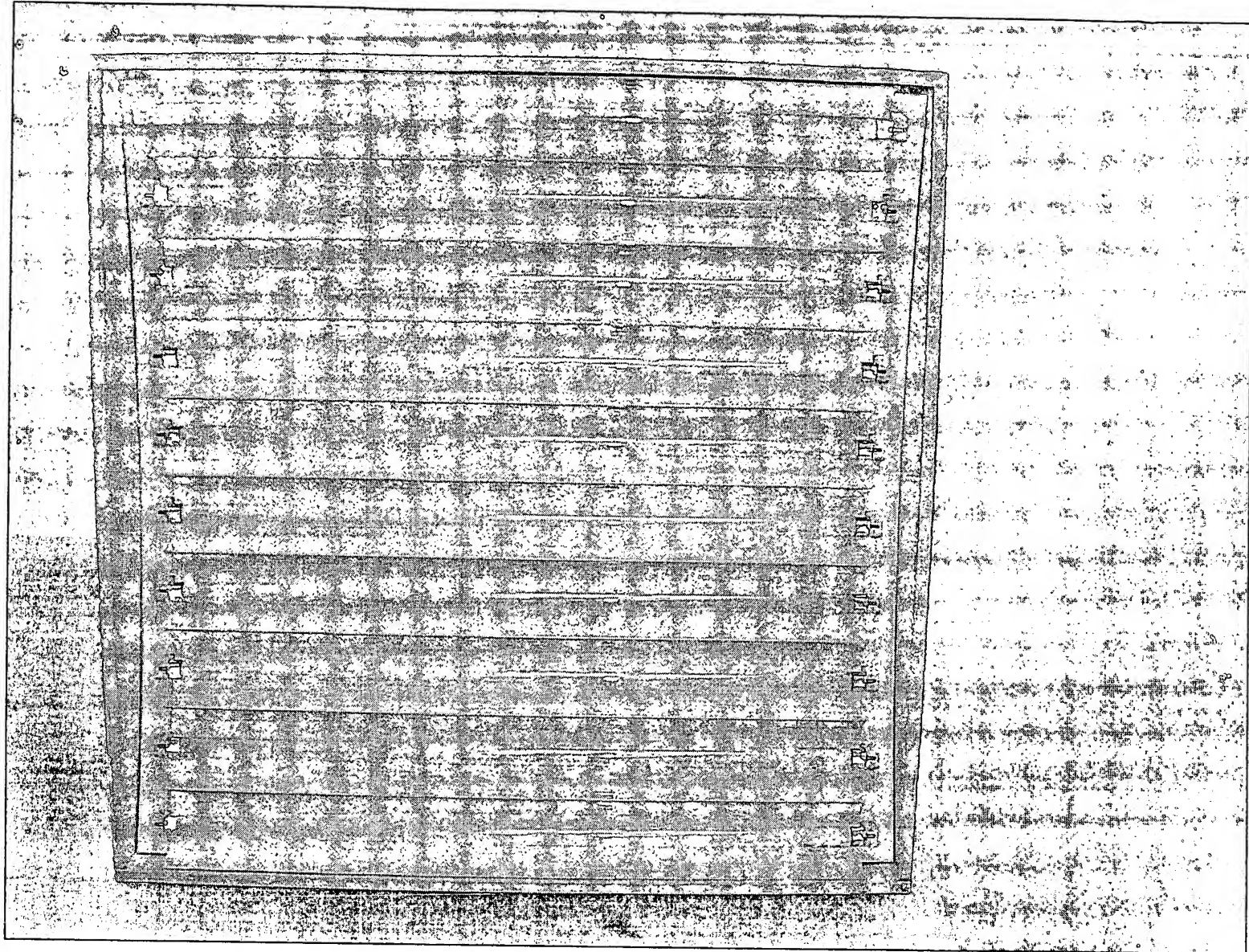
FIG. 25

W.W.

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DSC 00323/7c



Complete lower compartment of housing item ①
Showing 10 lamps installed

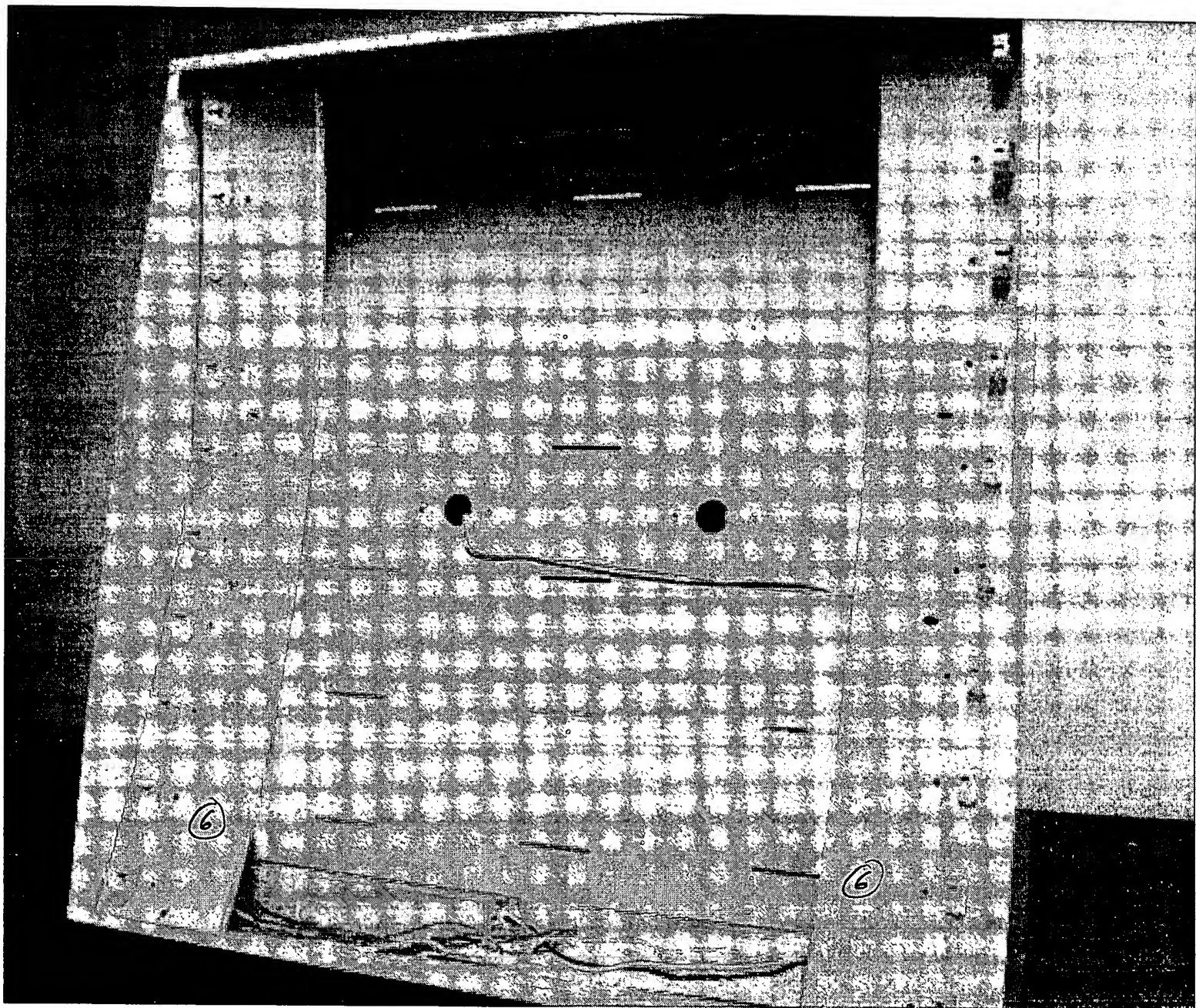
FIG. 26.

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(26)

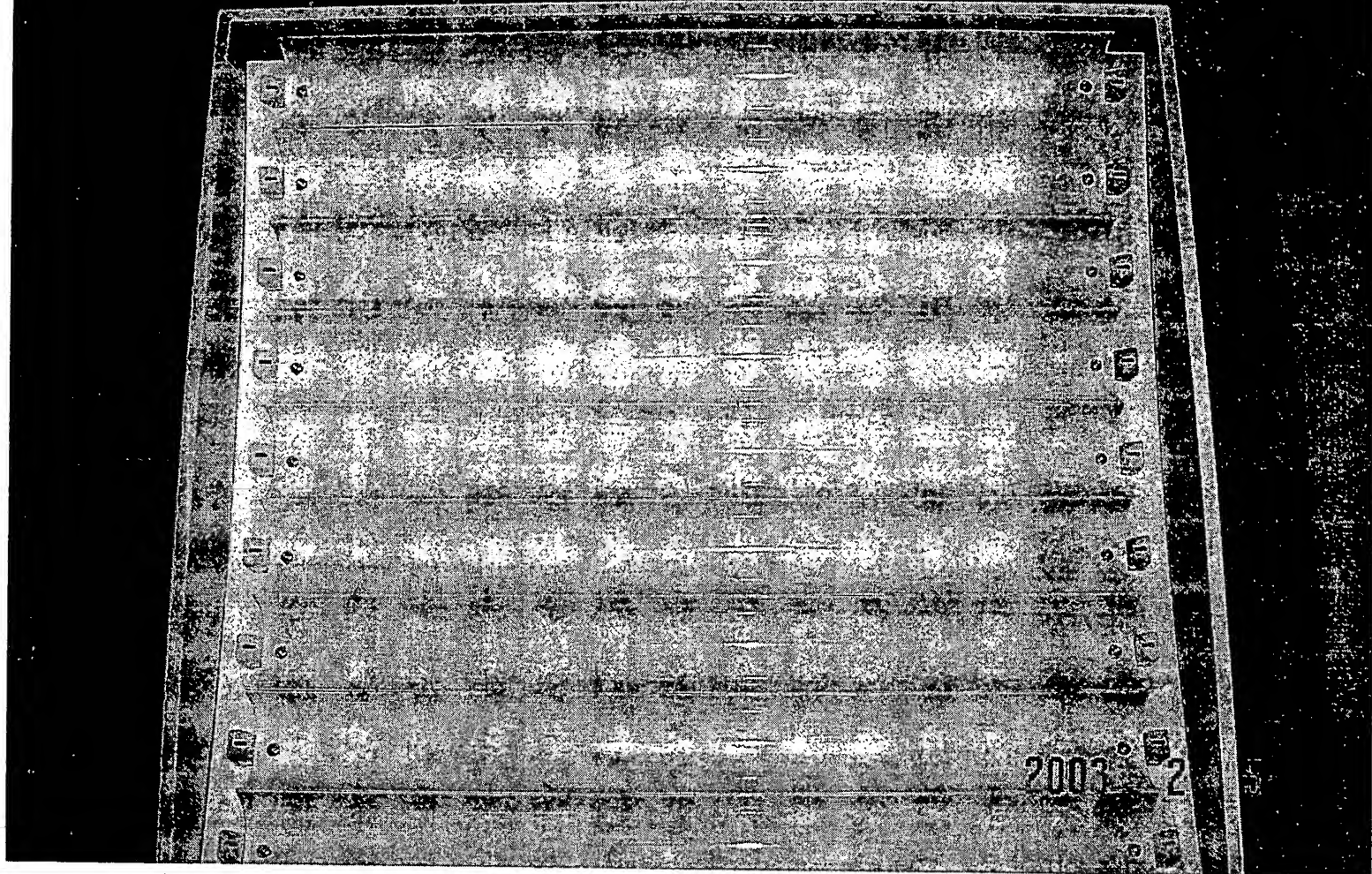


Alternate Socket (6) Installation with ballasts item (12)
installed in the Box (1) in the conventional known art.

WCh
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FIG 27.
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DSC00197 127.



*Complete lower Compartment with
reflectors & socket supports - less lamps*

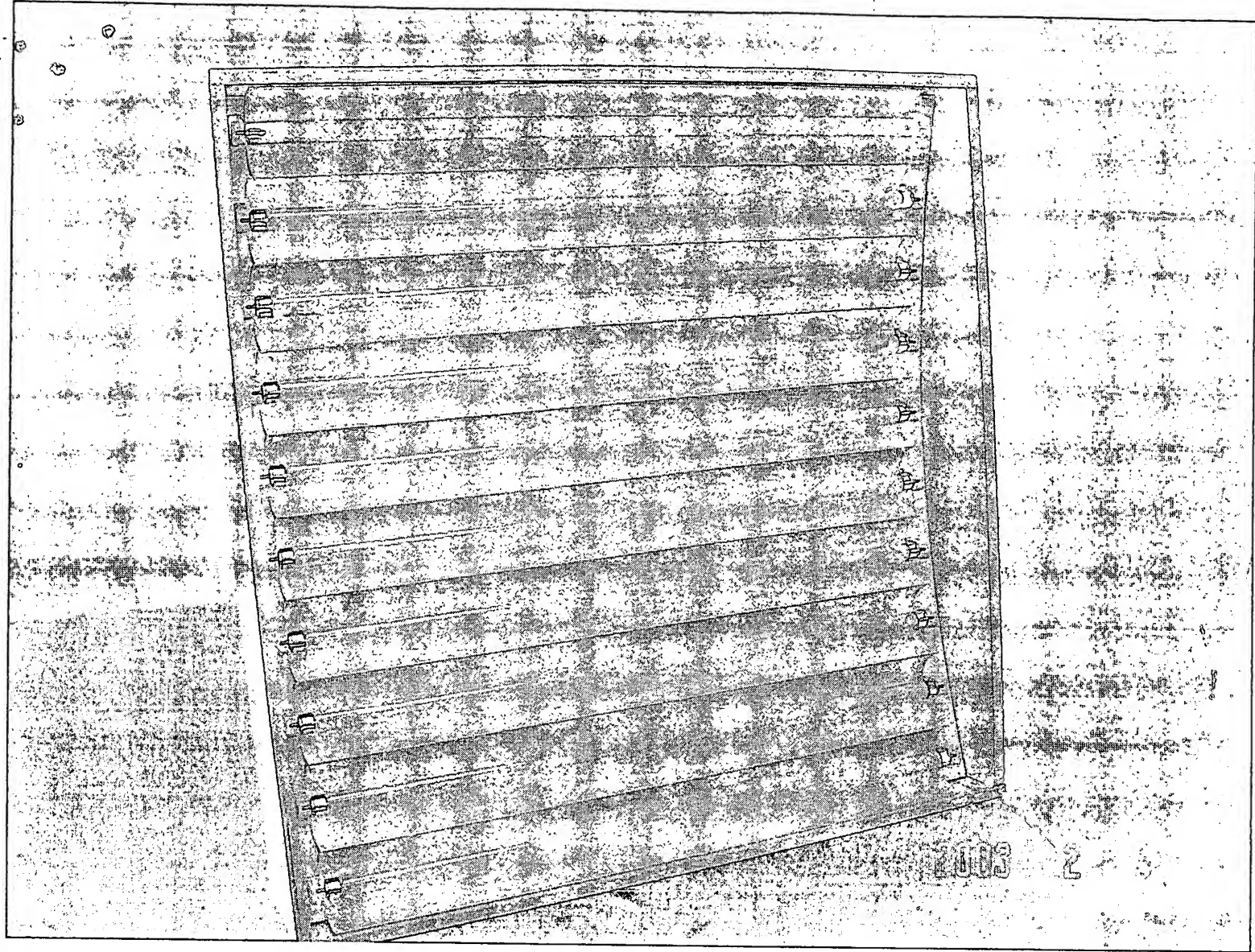
FIG. 28

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DSC 00324 (28)



Complete lower Compartment with lamps

FIG. 29.

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DSC00327 29